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RRES-R Program Health and Safety Requirements Manual

Produced by the Risk Reduction and Environmental Stewardship–
Remediation Program

CONTENTS

ACRONYMS AND ABBREVIATIONS

AIHA	American Industrial Hygiene Association
ALARA	as reasonably achievable
ANSI	American National Standard Institute
ASL	above sea level
BUS	Business Operations Division
CPR	cardiopulmonary resuscitation
CRZ	contamination reduction zone
DOE	US Department of Energy
DOT	US Department of Transportation
EM&R	Emergency Management and Response
EPA	US Environmental Protection Agency
ESH	Environment, Safety and Health
EZ	exclusion zone
FMU	facility management unit
FTL	field team leader
GMP/OA	General Monitoring Pool/Other Areas
HAZWOPER	hazardous waste operations and emergency response
HE	high explosive
HP	health physics
HPT	health protection technician
HS	health and safety
HSR	Health, Safety, and Radiation Division
HSRM	health and safety requirements document
IDLH	immediately dangerous to life or health
ISM	integrated safety management
LAMC	Los Alamos Medical Center
LANL	Los Alamos National Laboratory

LIR	Laboratory implementation requirement
MOU	memorandum of understanding
MSDS	material safety data sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NUREG	Nuclear Regulatory Commission regulations
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PM	project manager
PPE	personal protective equipment
PS	Performance Surety Division
PTL	project team leader
QA	quality assurance
QC	quality control
QP	quality procedure
RCA	radiological controlled area
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RPF	records processing facility
RRES	Risk Reduction and Environmental Stewardship
RSAA	radiological surveillance authorization agreement
RSP	radiological screening personnel
RWP	radiological work permit
SOP	standard operating procedure
SSHASP	site-specific health and safety plan
SSO	site safety officer
TSDF	treatment, storage, and disposal facility
UC	University of California

UTR	university technical representative

1.0 INTRODUCTION

This health and safety requirements manual (HSRM) was developed by the Risk Reduction and Environmental Stewardship (RRES) Division Remediation Program (RRES-R) at Los Alamos National Laboratory (the Laboratory). This document is intended to clearly define health and safety requirements and expectations for personnel who conduct RRES-R field operations in relation to the five core functions of integrated safety management (ISM):

- define the scope of work;
- identify and analyze the hazards;
- develop and implement hazard controls;
- perform work safely within controls; and
- ensure performance.

This HSRM establishes umbrella radiological, health and safety (HS) requirements, and information applicable to RRES-R Program field operations project-wide. This HSRM supersedes "Environmental Restoration Project Health and Safety Plan," Revision 2, dated January 2000 (LANL 2000, 65050).

The US Department of Energy (DOE) requires Laboratory compliance with the most current federal Occupational Safety and Health Administration (OSHA) requirements. Accordingly, this HSRM addresses hazardous waste operations and emergency response (HAZWOPER) and non-HAZWOPER activities. Guidance for determining the applicability of the OSHA HAZWOPER standard can be found in Appendix A. In some cases, the Laboratory has chosen to invoke OSHA and Laboratory requirements that ordinarily may not apply to RRES-R Program operations (e.g., the OSHA general industry standards in 29 CFR 1910). These decisions were made on a case-by-case basis to maintain consistency with the University of California's (UC) contract with DOE, its policy to minimize hazard levels to as low as reasonably achievable (ALARA), and to clarify the Laboratory's expectations with regard to interpretable requirements of the multiple agencies that govern RRES-R Program field operations.

The Laboratory has developed and implemented radiation protection policies and procedures to comply with federal- and DOE-mandated regulatory requirements and consensus standards, including though not limited to occupational radiation protection (10 CFR 835), the DOE radiation control manual (DOE 1994, 59928), applicable DOE orders and national standards, Nuclear Regulatory Commission (NRC) regulations (NUREG), and DOE implementation guides. The Laboratory has developed a Radiation Protection Program, Laboratory implementation documents, and other institutional and job-specific standards and procedures to comply with applicable standards and requirements in a consistent manner and to provide guidance for conducting Laboratory operations in compliance with Laboratory policies and procedures.

This HSRM and model site-specific health and safety plan (SSHASP) outlines (short- and long-form version; see Appendix B), are available to RRES-R Program participants in written and electronic form. These documents are supplemented by the Laboratory's Industrial Hygiene and Safety Group (HSR-5) of the Health, Safety, and Radiation (HSR) Protection Division field operations manual that addresses HSR-5 health and safety oversight activities.

1.1 Scope and Applicability

The Laboratory acknowledges that potential hazards are inherent to the performance of RRES-R Program field operations conducted at the Laboratory. Accordingly, the Laboratory expects that work conducted under contract to the Laboratory will be performed in a safe and healthful manner that minimizes the threat and occurrence of hazards to health, property, and the environment to ALARA levels. RRES-R Program participants are responsible for conducting work in accordance with applicable federal, state, and local regulations and DOE and the Laboratory requirements. The term "RRES-R Program participants" refers to anyone who performs RRES-R Program work, including Laboratory subcontractors and lower-tier contractors, consultants, and agents.

In addition to the umbrella information and requirements provided in this document, a SSHASP shall be prepared for each field project. The project team leader (PTL), the Laboratory representative having authority and responsibility for SSHASP development and implementation, will delegate the responsibility for SSHASP preparation (see Section 3.3.1.2, Project Team Leader). Each SSHASP supplements this HSRM by providing additional HS information and requirements as they are indicated by operations and conditions at individual project sites.

In the interest of protecting health and property (i.e., Laboratory property and associated personnel, the local public and their interests, and the personnel and equipment involved in conducting RRES-R Program work), programs, plans, and procedures associated with the performance of RRES-R Program field projects are subject to approval by designated Laboratory representatives prior to implementation, as discussed in Section 1.2, Review and Approval of Health and Safety Documents. However, such approval does not relieve RRES-R Program participants from compliance with Laboratory and regulatory requirements pertaining to HS programs, plans, procedures, or work practices; nor does such approval relieve RRES-R Program participants from their responsibility to maintain a safe and healthful work environment. Subcontractors to the Laboratory and lower-tier subcontractors are solely responsible for the health and safety of their employees.

The subcontractor shall comply with this HSRM, any approved revisions to this HSRM, the subcontractor's programs, and any site-specific plans and procedures that the Laboratory has approved in relation to the work. Both this HSRM and the SSHASP for each project shall be kept readily available for reference by individuals who perform RRES-R Program field operations. Where there is concern that implementation of work orders or HS requirements would conflict with contract terms, or could unreasonably compromise the safety or health of an individual or the environment, such concerns should immediately be brought to the attention of the contract administrator and the HSR-5 representative. All RRES-R Program participants are authorized to immediately stop any RRES-R Program activity that poses unreasonable risk to persons or the environment (Section 3.6, Stop-Activity and Stop-Work Orders).

Failure to comply with terms of HS documents may constitute cause for the Laboratory to stop activity or for issuance of a stop-work order (Section 3.6, Stop-Activity and Stop-Work Orders) without cost or penalty to the Laboratory as delineated in the terms of each specific task or work order let under a RRES-R Program contract. The contract administrator shall notify the subcontractor in writing of any noncompliance with contract provisions. Meanwhile, it is the subcontractor's duty to correct noncompliant conditions without delay, upon awareness that such conditions exist.

1.2 Review and Approval of Health and Safety Documents

DOE and OSHA require employers to develop, implement, and maintain certain written documents as a means of preventing or mitigating exposure to HS hazards in the workplace. The primary programs,

plans, procedures, and permit systems required for conducting work at the Laboratory are discussed in this section.

When a subcontractor to the Laboratory acts as a prime contractor by having lower-tier subcontractors perform work, the subcontractor is responsible for contracting lower-tier subcontractors whose HS program documents are approved by the Laboratory, or the lower-tier subcontractors' personnel shall abide by the subcontractor's Laboratory-approved HS program documents. Lower-tier subcontractor personnel also shall abide by project-specific HS documents and site-specific Laboratory-approved permits discussed in this section. Any variances from approved program or project-specific documents or site-specific permits shall be approved prior to implementation by an authorized representative of the affected parties, the PTL, and the HSR-5 representative.

1.2.1 General Programs, Plans, Procedures, and Permit Systems

Before a contract is awarded or a task or work order is let, prospective Laboratory subcontractors shall submit their general written programs, plans, procedures, and permit systems (hereafter referred to as "program documents") to the contract administrator for review and approval by appropriate Laboratory representatives. These program documents are listed in Appendix C. Only program documents that are required by OSHA, DOE, and/or the Laboratory and those that are applicable to performance of an RRES-R Program contract shall be submitted. Programs that currently are compliant and already are approved by the Laboratory need not be resubmitted. When a subject has been addressed sufficiently in one of the employer's documents (e.g., respiratory protection within a HAZWOPER program), it need not be repeated elsewhere, although it should be cross-referenced appropriately. As indicated in Section 1.2.3, Site-Specific Permits, Laboratory subcontractors may be required to use the Laboratory program documents.

1.2.2 Project-Specific Documents

OSHA-, DOE-, and/or Laboratory-required documents (e.g., plans, procedures, and permits) shall be submitted to the HSR-5 representative for review and approval by appropriate Laboratory personnel. Generally these submittals shall be made before the contract administrator awards a notice to proceed to the subcontractor. However, if an unanticipated activity becomes necessary during a project for which project-specific documents are required, the documents shall be submitted and similarly approved before related field activity begins.

> Note: Each SSHASP shall be identified with a unique RRES-R Program document catalog number and processed in accordance with the most current version of RRES-R Program Quality Procedure (QP) 4.10 requirements, including hard copy transmittal to the Records Processing Facility (RPF) per QP 4.4. The unique document catalog number shall appear on the title page and in the footer of each page of the completed SSHASP.

Before any fieldwork is imitated, a final draft of the SSHASP, with the assigned document catalog number, shall be submitted for review by Laboratory, subcontractor, and lower-tier subcontractor representatives. Once the review comments have been resolved and incorporated, the final SSHASP shall be signed by the following:

- an HSR-1 and HSR-5 representative,
- the RRES-R Program PTL,

- an authorized representative of each RRES-R Program subcontractor or lower-tier subcontractor who has an employee subject to the terms of the SSHASP, and
- an authorized representative of the Laboratory facility management unit (FMU) where the operations will occur.

Such signatures, which shall be affixed to the signature page, shall serve as certification that the employers have reviewed, concur with, and will ensure that their employees abide by the requirements stated in the HSRM and SSHASP. The preparer shall provide a copy of the completed, signed SSHASP to each SSHASP signatory.

Additionally, each individual who will enter an area of a site where access has been limited in accordance with the SSHASP shall sign an acknowledgement form (Appendix D) to acknowledge that he or she has read or been briefed on and understands the contents of the HSRM and the applicable SSHASP and any supplements, and agrees to abide by terms of these documents.

1.2.3 Site-Specific Permits

Site-specific permits (and job-specific procedures such as lockout/tagout of hazardous energy) that the Laboratory or its agent must sign in acknowledgment or approval prior to implementation are identified in this section. Unless otherwise indicated in writing by the contract administrator, the subcontractor shall initiate action, through the PTL, to obtain the Laboratory acknowledgment and/or approval of its permits before the anticipated date of any permit implementation. Such action may include a requirement that the subcontractor submit project-specific standard operating procedures (SOPs). As the host organization, the Laboratory will provide the subcontractor with preliminary hazard assessment information necessary for permit preparation. The subcontractor, in turn, shall provide the Laboratory with a copy of the subcontractor's terminated permit at the completion of the permit-required work.

The following permits and/or procedures apply to RRES-R Program field operations. The most current versions of these permits and/or procedures shall be followed.

- Confined space entry—Compliance with 29 CFR 1910.146 and Laboratory implementation requirement (LIR) 402-810-01, Confined Spaces.
- Excavation—RRES-R Program participants are required to apply for a Laboratory excavation permit in accordance with LIR 402-880-01, Excavation/Soil Disturbance Permit Process, for any excavating (groundbreaking) or trenching operation. Any such operations that will penetrate subsurface soil by more than 1 ft in depth also will require completion of the environment, safety, and health review (ESH-ID) process.
- Lockout/tagout of hazardous energy sources—Required by 29 CFR 1910.147 and LIR 402-860-01, Lockout/Tag Out for Personal Safety, a written procedure shall be prepared before any such activity is initiated.
- Radiological work permits—Required by the Laboratory's Health Physics Operations Group (HSR-1), and LIR 402-700-01, Occupational Radiation Protection Requirements.
- Spark/flame-producing operations (hot work/burn permit)—RRES-R Program participants shall comply with LIR 402-840-01, Welding, Cutting, and Other Spark- or Flame-Producing Operations, which requires a special work permit for spark/flame-producing operations.
- Special work permits—Special permits as required by the FMUs where site operations will occur.

1.3 Updating HS Documents

Evolutionary changes in HS information or requirements that apply project-wide will be incorporated in updates to this HSRM. During the interim (i.e., while updates are being incorporated), the most current Laboratory-approved requirements of the contract apply. Any exceptions or deviations from this HSRM shall be described in writing (e.g., in the applicable program, project-specific document, or site-specific permit or record) together with the rationale for such deviations.

The subcontractor shall maintain and implement its programs as they apply to the work being performed at the Laboratory. Programs shall be updated as necessary for compliance as regulations or Laboratory requirements change. Unless indicated otherwise in writing, the subcontractor shall submit newly required program documents and updates to the contract administrator at least 30 days before the scheduled start date of an operation for which a written program is required, for review and approval by appropriate Laboratory personnel.

The document preparer or designee shall revise the SSHASPs as necessary to include new information and changes that keep the SSHASP current. The PTL and HSR-5 representative must approve all deviations from an approved SSHASP prior to implementation. In addition, the field team leader, subcontractor project manager (PM) or HS personnel shall document deviations (e.g., a field logbook, SSHASP modification form, or memo to the project file). The subcontractor (or the Laboratory, as appropriate) makes revisions to an approved SSHASP using a SSHASP modification form (Appendix E). SSHASP modification forms shall be signed and distributed in the same manner as the original SSHASP. In addition, SSHASP modifications shall follow the most current version of QPs 4.4 and 4.10, in the same manner as the original SSHASP. Any changes to an approved SSHASP shall be communicated to affected individuals prior to implementation.

Likewise, changes made to a radiological work permit (RWP) due to changing scope of work or radiological conditions shall be documented on Laboratory form 2057, Changes to RWP, and approved by HSR-1 and appropriate line management.

Modifications to a SSHASP may require a change in the terms or scope of a subcontract. However, a SSHASP modification form is not used to modify the scope or terms of a project contract. To modify a contract, the subcontractor shall notify the contract administrator of a proposed change and shall not proceed with the change until a change order has been accepted by both parties, or unless the contract administrator gives unilateral direction.

2.0 BACKGROUND INFORMATION

A SSHASP shall provide background information specific to the project , including the project scope of work and relevant history and descriptions of the project sites.

To address the HAZWOPER requirement of 29 CFR 1926.65(l)(3)(i)(A), this section provides general information about the location and climate of Los Alamos that is applicable to conducting all RRES-R Program field operations.

2.1 Location

The Laboratory and the communities of Los Alamos and White Rock are located in Los Alamos County in north-central New Mexico. The population of Los Alamos County according to the 2000 United States census was 18,343. By air Los Alamos is located approximately 60 mi north-northeast of the city of

Albuquerque and 25 mi northwest of the city of Santa Fe. Much of Los Alamos is located on the Pajarito Plateau on the eastern flanks of the Jemez Mountains. The plateau slopes downward to the east-southeast, covering a distance of more than 15 mi from the base of the Jemez Mountains (approximately 7800 ft above sea level [ASL]) to a location just above the Rio Grande Valley (approximately 6200 ft ASL). Numerous alternating "finger" mesas and canyons run along the plateau slope line. The canyons are 150 to 300 ft deep and 300 to 600 ft wide. The Sangre de Cristo Mountains lie nearly 40 mi east. The Rio Grande Valley runs north-northeast to south-southwest between the two mountain ranges.

2.2 Prevailing Weather Conditions

Los Alamos has a semiarid, temperate mountain climate with four distinct seasons. The average annual precipitation is 18.7 in. with about 36% of the annual precipitation falling from convective storms during July and August. Annual snowfall averages 59 in. but is quite variable. Lightning is very frequent in Los Alamos with an average of 61 thunderstorms a year. In addition to the lightning, hail often accompanies summertime convective storms. Hailstones of 0.25 in. are common and stones of 1.0 in. in diameter have been reported.

Los Alamos winds generally are light, having an annual average speed of 5.5 mph. However, the period from mid-March to early June is apt to be windy with sustained wind speeds exceeding 8.8 mph approximately 20% of the time during the daytime. These high winds are associated with frontal passages, thunderstorms, and midlatitude storm systems. No tornadoes are known to have touched down in the Los Alamos area, although funnel clouds have been observed in Los Alamos and Santa Fe Counties.

3.0 COMMUNICATIONS, ORGANIZATION, RESPONSIBILITY, AND AUTHORITY

This section defines the HS roles, responsibilities, and authorities of individuals and describes the organizational structure and lines of communication that are necessary to achieve RRES-R Program safety objectives. This section complies with the Laboratory ISM System, the Price Anderson Act amendments, and OSHA HAZWOPER requirements.

Defining HS communications, responsibilities and authority for the RRES-R Program is complicated by the matrix structure of the organization and the involvement of multiple subcontractor organizations. The effective HS structure and communications methods that have evolved over time are described in this section. Current RRES-R Program HS structure and communications are based on the following concepts.

Line organization and management—A basic premise of ISM is that line management is responsible for safety. The RRES-R Program abides by this concept. However, because individuals from many different line organizations (e.g., Laboratory divisions) are matrixed to the RRES-R Program, the RRES-R Program shall write memoranda of understanding (MOUs) or similar agreements so that individuals from other line organizations always know and understand their safety chains of command.

Programmatic organization and management—Many HS issues inherent with environmental restoration must be addressed at the program level. The Laboratory makes safety-related decisions that protect all RRES-R Program personnel, regardless of employer. Program HS requirement documents such as this HSRM describe these decisions and policies. Line organizations are responsible for implementing and meeting HS and programmatic requirements.

Facility management organization and management—The RRES-R Program performs work in many FMUs across the Laboratory. The RRES-R Program shall comply with the HS requirements of those FMUs. To facilitate compliance, the RRES-R Program and FMUs establish facility-tenant agreements and the preparer incorporates FMU HS requirements into the SSHASPs.

Subcontractor organization and management—Numerous subcontractors perform work as part of the RRES-R Program team. As private employers, they are obliged legally and contractually to maintain their own HS programs and line-management structure. Subcontractors integrate the RRES-R Program programmatic HS requirements into their HS programs as necessary while still maintaining a degree of HS autonomy. Subcontractors prepare SSHASPs for each field project; these SSHASPs define lines of communication that link subcontractors to Laboratory and/or RRES-R Program line organizations. Laboratory personnel review and approve the SSHASPs. This mechanism, along with Laboratory field oversight, helps ensure the integration of appropriate programmatic and line safety into work performed by subcontractors. Most importantly, HS roles, responsibilities, authority, and communications are established during the planning stages of every field project. The SSHASPs provide detailed information, ensuring that the RRES-R Program integrates safety in the field, which is the source of the greatest potential hazards.

3.1 Communication

HS issues shall be communicated quickly and effectively to protect affected RRES-R Program team members and personnel who are working nearby. To meet this requirement, several communications processes will be implemented. These processes may be adjusted as necessary to best meet the needs of each field project and shall be described accurately in each SSHASP.

3.1.1 Prefield Communication

HS communications start before a prospective employee joins the RRES-R Program. Managers shall communicate the importance of HS during the interview process. All candidates are required to comprehend the issues and to understand the importance of and accept responsibility for conducting their work according to applicable SSHASPs and this HSRM. HS communications continue during the training of personnel for the RRES-R Program. This training includes general and Laboratory-specific HS training requirements and a pre-job-start HS briefing.

3.1.2 Field Communication

Routine communications processes are employed as long as field activities progress as planned and conditions are consistent with those addressed in the SSHASP. Each morning, a tailgate safety meeting will be held (see Section 10.1.2, Tailgate HS Meetings). Attendance is mandatory for all project team members on the site. The university technical representative (UTR), field team leader (FTL), site safety officer (SSO) or the SSO designee will conduct the meetings. During these meetings, the work plan for the day will be discussed and specific task hazard analyses reviewed. Feedback from team members will be actively solicited and incorporated into hazard control measures. Periodically, special-emphasis topics may be included in the meeting. These are 5- to10-min refresher sessions covering HS topics that are relevant to the work being conducted. Additional tailgate safety meetings may be held at the discretion of the UTR, FTL, SSO, or designee.

When field conditions change, added communication is required. The UTR/FTL or designee is responsible for communicating the changes to all field team members, the responsible PTL, the FMU representative, subcontractor SSO, Project support personnel (e.g., HSR-1) and other RRES-R Program

managers, as appropriate. Changing conditions often require a temporary “stop activity” until all HS hazards can be adequately identified and controlled (Section 3.6, Stop-Activity and Stop-Work Orders). This may require an ad hoc safety-planning meeting and immediate telephone calls or radio communications. If unanticipated tasks must be performed, a task hazard assessment shall be performed, usually by the SSO (Section 4.0, Hazard Analysis) and the resulting information communicated to all affected personnel. If the changing condition involves more or different radiological contamination than planned, the UTR/FTL shall communicate with the HSR-1 Team Leader to arrange for adequate radiological control technician (RCT) support and/or changes to the RWP.

3.1.3 Postfield Communication

At the conclusion of field activities, and consistent with ISM, the UTR/FTL and SSO shall analyze the effectiveness of the HS program. If appropriate, the SSO shall provide feedback to RRES-R Program management, the HSR-1 group leader, the HSR-1 team leader, the HSR-5 group leader, the HSR-5 representative, the FMU representative, and the RRES-R Program lessons-learned coordinator. Suggested changes shall be incorporated for continuous improvement, particularly if there have been HS problems or if things have gone exceptionally well.

3.2 Site Visitor Policy

A visitor (e.g., regulatory personnel, private-property owners, field auditors, or the public) is anyone who arrives at the work site who is not identified in project-specific documents as a project team member or associated support personnel. When a visitor arrives, the UTR/FTL or designee shall meet with the visitor to determine the purpose of the visit and to provide a safety briefing. This briefing shall include at a minimum a description of known and anticipated hazards and applicable controls, site emergency response procedures, and site escort requirements.

Visitors shall not be permitted to enter limited-access, controlled work zones unless absolutely necessary, and then only with the authorization of the UTR/FTL. In such cases, the visitor shall be briefed according to Section 10.1.1, Pre-Job-Start HS Briefing; shall meet all applicable requirements of this HSRM and SSHASP; and may need to be accompanied by an escort at the discretion of the UTR/FTL. If a visitor does not comply with these requirements, the UTR/FTL or designee shall ask the visitor to leave the controlled zone immediately or shall limit site operations to minimize threat of harm to the visitor (e.g., have the project team take a break, reset zone boundaries if appropriate, or temporarily discontinue any threatening task). Alternatively, if a visitor needs to observe work being performed in a controlled zone that is not readily visible from outside the zone, the work may be videotaped or photographed, if security is not compromised.

3.3 Organization, Responsibility, and Authority

This section describes the organizational structure, responsibility, and authority of personnel as they relate to HS. Each SSHASP identifies the specific individuals who fulfill these roles.

3.3.1 Managers

3.3.1.1 Program Manager

The Program Manager is the Laboratory employee who is ultimately responsible for the safety of people working on the RRES-R Program. The Program Manager's responsibilities include

- making H/S policy decisions;
- ensuring that adequate HS resources are available to meet HS objectives;
- resolving conflicts between HS and production that cannot be resolved at a lower level;
- ensuring that PTLs and other RRES-R Program personnel comply with HS programmatic requirements;
- performing safety walk-around surveys;
- supporting and promoting Laboratory ALARA policies and principles;
- ensuring that ALARA program requirements are met; and,
- exercising programmatic and line safety management authority as required.

3.3.1.2 Project Team Leader

The PTL is a Laboratory employee who reports to the RRES-R program manager. The PTL may direct one or more UTRs or FTLs.

> Note: When these activities require documentation and records, the PTL shall create an MOU, memo, or other appropriate record.

The PTL's HS responsibilities include

- exercising programmatic and line safety management authority as required;
- ensuring that the necessary SSHASPs are developed and that the comments of appropriate reviewers have been incorporated;
- ensuring that the RRES-R Program HSRM and SSHASPs are implemented for field operations under their control;
- delegating HS responsibility as necessary to maintain a clear chain of command for HS issues;
- ensuring that a designated supervisor is always on the site;
- ensuring that appropriate communications with FMUs have occurred;
- ensuring that personnel performing work under the PTL's management meet HS qualifications;
- communicating anticipated RCT support needs to the HSR-1 team leader based on current plans;
- resolving HS issues concerning the PTL's projects;

- prohibiting personnel who do not comply with HS requirements from working on field projects under the PTL's control;
- conducting required inspections (Section 12.0, Quality Control and Quality Assurance); and
- ensuring the submittal of appropriate field project HS records to the Laboratory RPF.

3.3.1.3 University Technical Representative

The UTR is a Laboratory employee who manages one or more field projects. The UTR has the flexibility to assume a direct role in managing fieldwork or may delegate that responsibility to one or more FTLs or subcontractor PMs.

> Note: When these activities require documentation and records, the UTR shall create an MOU, memo, or other appropriate record.

The UTR's HS responsibilities include

- exercising line management safety authority as required;
- delegating HS responsibility as necessary to maintain a clear chain of command for HS issues;
- ensuring that a designated supervisor is always on the site;
- ensuring that all known tasks, associated hazards, and control measures have been identified;
- ensuring that provisions of the SSHASP are implemented for his projects;
- ensuring that
  - each concerned party has reviewed the SSHASP for accuracy and adequacy according to Section 1.2, Review and Approval of Health and Safety Documents;
  - review comments are resolved; and
  - the SSHASP is signed before any field activities begin;
- ensuring that only qualified personnel perform RRES-R Program work;
- initiating work authorizations with HSR-1 for RCT support of field activities;
- communicating changes in fieldwork schedules with the HSR-1 team leader so that adequate RCT support is available;
- ensuring that all field team members receive daily safety briefings;
- ensuring that all required permits have been obtained;
- ensuring that emergency response planning and training is completed before field operations begin;
- functioning as site incident/emergency coordinator and arranging for immediate notification of Laboratory emergency response personnel to take control of the scene and/or for immediate notification of appropriate authorities (Section 9.0, Emergency Plan);

- conducting required inspections (Section 12.0, Quality Control and Quality Assurance);
- ensuring that necessary field logs and HS records are kept; and
- providing necessary HS records to the PTL at the close of the project (Section 13.0, Recordkeeping).

3.3.1.4 Field Team Leader

The FTL typically is a subcontractor employee. Through delegation, an FTL may assume some of the HS responsibilities and authority of the UTR. The PTL shall authorize this action. The purpose of such delegation is to maintain a clear HS chain of command in the field.

3.3.1.5 Subcontractor Project Manager

The subcontractor PMs are responsible for ensuring that employees under their supervision comply with this HSRM and SSHASP. They are responsible for ensuring the full cooperation of their organizations with the Laboratory and other subcontractors to achieve HS objectives. In addition, the subcontractor PM shall exercise line management safety authority for personnel working for that company.

Through delegation, subcontractor PMs may assume some of the UTR's HS responsibilities and authority. The PTL must authorize this action. The purpose of such delegation is to maintain a clear field HS chain of command.

Subcontractors to the Laboratory that engage their own subcontractors (lower-tier subcontractors) are responsible for ensuring that their subcontractors comply with all programmatic and site-specific HS requirements and that the subcontractors designate an on-site supervisor who has line management HS authority. When multiple subcontractors work together in the field, ultimate on-site authority resides with the UTR or the UTR's designee.

3.3.2 Project Field Team Members

Project field team members may be part of the RRES-R Program organization, other Laboratory divisions, Laboratory support organizations or subcontractor organizations. Ultimately, field team members are responsible for conducting work in a safe manner and have the authority to stop work when unsafe conditions exist (Section 3.6, Stop-Activity and Stop-Work Orders). Project field team members are responsible for abiding by requirements of this HSRM and the SSHASP; any supplements, permits, or modifications to those documents; and other applicable HS regulations and procedures. They also are responsible for fulfilling and maintaining their individual training and medical surveillance requirements. If there is concern that work activities present imminent danger or would unreasonably compromise the safety or health of an individual or the environment, work activities shall stop and the concerns shall be brought to the attention of the line supervisor, the SSO, or UTR/FTL. When field line managers cannot resolve an HS concern, the Laboratory or the subcontractor shall bring the matter to the attention of higher line managers or the HSR-5 representative, as necessary. If adequate resolution still has not been achieved, Laboratory or subcontractor personnel may use the following four methods for reporting HS concerns.

- The concern is entered into the Laboratory's Safety Concern System, located at http://remedy.lanl.gov/SCS, and is routed to a group-level manager for action.

- Anonymous concerns may be submitted verbally to the Safety Concerns Program ES&H Hotline at 505-665-5010.
- A complaint of unsafe conditions or a request for inspecting or monitoring the workplace should be filed with HSR-5 at 505-667-5231. The complainant's identity remains confidential.
- Concerns may be submitted verbally by calling the DOE/National Nuclear Security Administration Albuquerque Operations Office employee-concerns hotline, telephone 1-800-688-5713, or in writing. If writing, a report form can be obtained from the employee concerns manager at the DOE Office of Los Alamos Site Operations, located at 528 35th Street, Los Alamos, NM 87544.

DOE and the Laboratory adhere to the policy that employees who report HS concerns are protected from reprisal.

3.3.3 HS Personnel

3.3.3.1 Site Safety Officer

OSHA requires the designation of a site safety and health supervisor (the site SSO) and that this person shall have the responsibility and authority to develop, implement, and verify compliance with the SSHASP. The SSO may be an HSR-5 representative covered by an MOU or a subcontractor employee working under a statement of work. The SSO may perform other duties on the project team if these duties do not compromise performance of SSO duties. On a project-specific basis, the SSO shall be qualified to recognize and evaluate occupational HS hazards and to minimize and mitigate the hazards. Appendix F lists guidance criteria for determining SSO qualifications.

The PTL and/or UTR shall determine if a dedicated project-specific SSO is necessary. If a full-time SSO is not required, applicable SSO duties shall be assigned to other qualified on-site personnel.

Projects with multiple subcontractors will have more than one person with site HS responsibilities. The UTR/FTL is responsible for ensuring that the safety chain of command is clearly defined and documented and that safety coverage is comprehensive.

Specific SSO responsibilities are

- assisting with and/or developing the SSHASP;
- assisting in verifying that on-site personnel have current certification of applicable training and medical surveillance requirements;
- helping the UTR/FTL implement this HSRM and SSHASP in compliance with applicable federal, state, and local HS regulatory requirements;
- performing and documenting HS inspections (Section 12.0, Quality Control and Quality Assurance);
- notifying the UTR/FTL of any on-site personnel who do not adhere to applicable HS requirements and of potential or actual hazardous situations that need to be rectified;
- watching for changes in site operations and conditions that warrant hazard mitigation and/or modifications to project HS plans, procedures, permits, etc.;

- ensuring that copies of this HSRM, the SSHASP, and their supplements and modifications are current and that these documents are readily accessible on the site;
- assessing the need to monitor employee exposure to HS hazards, arranging for monitoring, and conveying results and known implications to the UTR/FTL and HSR-5 representative;
- informing the UTR/FTL, the HSR-5 representative, and affected subcontractor line management of results of employee exposure monitoring (Section 13.3, Employee Notification of Personal Exposure-Monitoring Results);
- monitoring levels and effectiveness of personal protective equipment (PPE) and verifying proper use, storage, and maintenance of equipment; and
- maintaining HS-related field records, including a daily log of HS-related matters concerning site operations, and submitting these records to the RPF as necessary before project close-out.

3.3.3.2 Industrial Hygiene Technician

The industrial hygiene technician is any designated team member who is capable of monitoring employee exposure to hazardous substances and, to the extent necessary for the site-specific work, is capable of evaluating exposure-monitoring results to determine how to protect on-site personnel.

3.3.3.3 Trenching/Excavation Competent Person

A designated trenching/excavation competent person is a designated team member or support person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who is authorized to take prompt corrective measures to eliminate such conditions (29 CFR 1926.650(b)). This person shall have had specific training in and be knowledgeable about soils analysis, the use of protective systems, and the requirements of 29 CFR 1926 Subpart P, Excavations, and the most current version of LIR 402-880-01, Excavation/Soil Disturbance Permit Process.

3.3.3.4 Registered Professional Engineer

A registered professional engineer is a person who is registered as a professional engineer in the state where specific work will be performed.

3.3.3.5 Confined-Space Entry Supervisor

The confined-space entry supervisor is a designated team member or support person who is responsible for determining whether acceptable entry conditions exist in a confined space where personnel entry is planned. This supervisor also is responsible for authorizing and overseeing entry operations and for terminating entry in accordance with 29 CFR 1910.146(b) and the most current version of LIR 402-810-01, Confined Spaces.

3.3.3.6 Other Competent or Qualified HS Personnel

Throughout 29 CFR 1926 and applicable standards of 29 CFR 1910 evoked by the Laboratory, OSHA uses the terms “competent” and “qualified” to denote specially trained and knowledgeable individuals who are required to perform certain job functions. These specific standards are cited as applicable throughout

this HSRM and the SSHASP. Wherever requirements exist in these standards for participation of a competent or qualified person, the person shall be trained and knowledgeable about the particular regulated subject matter in accordance with 29 CFR 1926.32(f) or (m), the applicable regulatory standard, and Section 10.0, Training.

3.3.4 Health Physics Personnel

Health physics (HP) personnel include radiological screening personnel (RSPs), health protection technicians (HPTs), and RCTs. HSR-1 provides HPTs and RCTs to the RRES-R Program through the FMU, or if HSR-1 resources are not available from the FMU, through the HSR-1 General Monitoring Pool/Other Areas (GMP/OA) team. These are the only personnel allowed to perform tasks required for compliance with 10 CFR 835 (e.g., surveying for unconditional equipment release from a field site). RCTs also perform oversight of RSP work. RSPs are contractor personnel who have a radiological surveillance authorization agreement (RSAA) with HSR-1. Typically, these agreements allow authorized individuals to perform limited radiological control tasks related to field projects. See procedure ESH-1-01-03.2, "Radiological Surveillance Authorization Agreement," July 1, 1999 (or current version) for details of the RSAA.

All HP personnel working on RRES-R Program field projects, regardless of employer, are responsible for immediately reporting radiological issues and concerns to the UTR/FTL and the HSR-1 team leader. It is essential that radiological concerns are reported up through the Laboratory chain of command.

3.3.4.1 Radiological Screening Personnel (Non-HSR-1 Personnel)

RSPs are responsible for providing project team HP monitoring support, in accordance with their RSAAs. Specific responsibilities include

- maintaining a current and valid RSAA;
- conducting radiological control work within the scope of their RSAAs;
- performing and documenting housekeeping radiological surveys;
- performing conditional equipment surveys;
- performing daily instrument response checks;
- ensuring that all radiation-monitoring equipment is in working order;
- contacting HSR-1 to ensure radiological postings are adequate and maintained;
- immediately notifying the UTR/FTL, SSO, and HSR-1 of any radiological concerns, including any contamination to skin or any personal clothing;
- providing the HSR-1 team leader with a daily verbal summary of site radiological conditions and copies of all radiological survey documentation; and,
- notifying the UTR/FTL and SSO when action levels defined in the SSHASP have been reached.

3.3.4.2 Health Protection Technician and Radiological Control Technician (HSR-1 Personnel)

In addition to the responsibilities of the RSP, the responsibilities of the HPT and the RCT include

- preparing, ensuring compliance with, and closing out RWPs;
- revising the site RWP when the radiological controls required do not provide adequate worker protection or contamination control or when conditions no longer warrant the initial controls;
- providing guidance on radiological decontamination of equipment and personnel;
- performing "unconditional release" surveys for equipment (RCTs only);
- providing regulatory compliance guidance to the UTR/FTL when field conditions change and radiological issues emerge; and
- reporting radiological concerns to the UTR/FTL and to the HSR-1 team leader.

3.4 Project Support Personnel

3.4.1 Subcontractor Representative

A subcontractor representative is a management or HS professional who represents an employer affected by terms of the SSHASP. This individual shall have the authority to approve the terms of the SSHASP and any modifications and to see that employees abide by these terms. In addition, a subcontractor representative

- interfaces with line PMs, other employers' supervisory personnel, and support professionals, as necessary, to coordinate implementation of HSRM, SSHASP, and other applicable HS requirements; and
- assists with resolving HS issues involving employees who are performing RRES-R Program work, particularly issues that involve discrepancies between the policies of multiple on-site employers and site-specific HS requirements.

3.4.2 HSR-5 Representative

The HSR-5 representative may be a Laboratory or a contract employee, or a subcontractor who is assigned to the PTL as a technical advisor. This representative provides HS support to personnel who perform RRES-R Program work. The HSR-5 representative serves as liaison between RRES-R Program personnel, HSR personnel, and FMU HS personnel. This representative arranges for Laboratory technical assistance related to industrial hygiene, operational safety, and HP. The HSR-5 representative also may be responsible, on behalf of the Laboratory, for implementing the HSR-5 field operations manual for projects assigned by RRES-R Program HS management.

The HSR-5 representative's responsibilities include

- ensuring that project-specific SSHASPs are reviewed by appropriate parties;
- verifying that known hazards, preventive measures, and mitigation controls associated with the project scope of work and tasks are adequately incorporated into the SSHASP;

- reviewing and approving SSHASPs, supplements, and modifications for RRES-R Program work; and
- verifying that field operations are conducted in accordance with applicable HS programs, plans, and regulatory requirements.

3.4.3 HSR-1 Team Leader

The HSR-1 team leader supporting the FMU (or if HSR-1 resources are not available from the FMU, the HSR-1 GMP/OA team leader) will be the point of contact for obtaining radiological control support and oversight for RRES-R fieldwork. The HSR-1 team leader will be provided with an anticipated field schedule based on current plans of the RRES-R Program. The UTR/FTL, or designee will communicate anticipated radiological support needs, based on the baseline, to the HSR-1 team leader so they may schedule resources. The UTR/FTL is responsible for communicating deviations from the baseline and changing support needs to the HSR-1 team leader at the earliest possible time. The responsibilities of the HSR-1 team leader include

- scheduling RCTs to support RRES-R Program fieldwork;
- updating scheduled support needs, based on feedback from the UTR/FTL;
- entering into work authorization agreements with the RRES-R Program for personnel assigned to support the RRES-R Program;
- reviewing HS documents as necessary;
- working with the UTR/FTL to resolve scheduling/resource conflicts;
- exercising line management safety authority as required;
- providing regulatory compliance guidance to the UTR/FTL when field conditions change and radiological issues emerge;
- serving as a conduit for feedback from RCTs to RRES-R Program management; and
- reporting radiological issues and concerns to RRES-R Program management that are not otherwise reported by RCTs.

3.5 Facility Management Unit Representative

FMU representatives are personnel of the FMU where RRES-R Program activity will occur. The top representative is the facility manager. The facility manager may be supported by building managers and their alternates and by personnel responsible for facility-specific environment, safety, and health (ESH) issues. With respect to RRES-R Program activities at Laboratory facilities, the facility manager or designee is responsible for

- establishing written facility-tenant agreements to communicate a mutual understanding of safety interface, requirements, roles, responsibilities, and authorities to the facility manager and facility occupants;
- authorizing all facility-related work within an affected FMU boundary;

- reviewing and approving or concurring with RRES-R Program SSHASPs and supplemental plans, permits, and procedures;
- determining which procedures ensure consistency within facility operating limits;
- reviewing and monitoring operations within the FMU boundary; and
- correcting or shutting down operations or activities that violate the facility-tenant agreement or that compromise safety.

3.6 Stop-Activity and Stop-Work Orders

Occasionally, an on-site activity or an entire field project must be discontinued because operating conditions are unsafe and must be reassessed to determine appropriate means and/or methods for continuing work safely. Stop-work and stop-activity shall be conducted in accordance with the most current version of LIR 401-10-01, Stop Work and Restart, and LANL-QP-ER-10.3, Stop Work and Restart.

Any individual observing an operation that presents a clear and imminent danger to the environment or to the HS of site personnel, visitors, or the public is obligated and is authorized to immediately stop the activity or work. Operations shall be altered or discontinued to eliminate the immediate threat of harm, and individuals shall be directed to immediately leave an area of imminent danger. In situations involving radiological hazards, RCTs have the responsibility and authority to stop work or to mitigate the hazard if they believe that initiation or continued performance of the activity will violate radiological control standards or result in imminent danger or unacceptable risk.

A stop-activity might involve a situation such as removing defective equipment that could result in injury or illness (e.g., removing site personnel from a section of scaffolding that is defective). A stop-activity does not necessarily stop the entire field operation.

Authorization to restart an activity or operation shall be in accordance with the most current versions of LIR 401-10-01, Stop Work and Restart, and QP 10.3, Stop Work and Restart.

When an activity or work stoppage has contractual implications, the contract administrator shall be involved in the assessment and decision to issue a stop-work order. Only a Laboratory contract administrator may issue a formal ("contractual") stop-work order. HSR-5 personnel may provide recommendations regarding the need to issue a stop-work order by notifying the PTL and UTR/FTL. The PTL or the HSR-5 representative will contact the contract administrator to arrange for review of the matter, and will proceed in accordance with applicable Laboratory procedures. Only a Laboratory contract administrator may authorize the restarting of work after a stop-work order.

4.0 HAZARD ANALYSIS

In compliance with DOE, OSHA, and Laboratory requirements, a hazard analysis shall be prepared for each task (activity) to be performed during a RRES-R Program project before the task begins (DOE 1996, 59930; DOE 1994, 59929; 29 CFR 1910.132(d); 29 CFR 1926.65(b)(4)(ii)(A); 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z substance-specific standards.). In this document, the term “hazard analysis” includes all OSHA terminology and processes inferred by the terms “hazard assessment” and “exposure assessment.” It also includes the determination and assignment of preventive and protective control measures that correspond to the assessed hazards. Consistent with ISM, each hazard analysis shall be site-specific and shall have two essential components: (1) identification and assessment of the hazards

associated with performing each task at each site and (2) determination of necessary and sufficient controls for preventing or mitigating anticipated hazards and adequately protecting affected personnel.

A qualified person shall identify and assess the potential hazards of each task that will be performed at each project site to determine the likelihood of occurrence and the potential severity of injury/illness (risk determination). The assessment shall include site- and task-specific hazards that could result from the unpredictable detonation of high explosives (HE) and/or exposure to radiological, safety, biological, physical, and chemical hazards. Protective and control measures shall be based on the risk determination.

The author/preparer shall incorporate site- and task-specific hazards, associated risk determinations, and controls into each SSHASP. The most current versions of LIR 300-00-01, Safe Work Practices, and LIR 402-10-01, Hazard Analysis and Control for Facility Work, contain further definition and guidance for making risk determinations.

This HSRM, a SSHASP (including a hazard analysis), and any necessary supplements generally will suffice as plans for controlling hazards in terms of worker HS. However, RRES-R Program activities at nuclear, nonnuclear, and radiological facilities may involve significant hazards to the public as well as to workers, and require integrating additional planning and analysis considerations throughout the work-planning process. DOE and the Laboratory agree that several DOE orders and American National Standard Institute (ANSI) standards pertaining to nuclear facilities and nuclear criticality control, among others, are applicable at the Laboratory. These requirements and guidance for determining their applicability are provided in the DOE handbook for occupational health and safety during hazardous waste activities (DOE 1996, 59930), and various DOE orders.

4.1 Hazard Assessment

Hazard assessment identifies the hazards associated with performing a task, assessing the likelihood of occurrence and the expected severity of injury/illness, and rating the hazard. Each task hazard assessment shall be site-specific because RRES-R Program fieldwork involves generic tasks at sites that have different conditions and site-related hazards. The hazard assessment, method, and rationale shall be stated clearly in each SSHASP.

4.2 Administrative and Engineering Controls

As a first line of defense, DOE, OSHA, and the Laboratory require employers to implement administrative and/or engineering controls to prevent and/or mitigate hazards and protect site personnel. If administrative and/or engineering controls do not prevent and/or mitigate the hazards, employers may require their employees to use PPE (Section 7.0, Personal Protective Equipment). This section addresses required basic administrative and engineering controls. Site-specific administrative and engineering requirements corresponding to task-specific hazard assessments (Section 4.1, Hazard Assessment) shall be included in the SSHASP.

4.2.1 General Administrative Controls

The general work practices and administrative controls in this section are to be implemented as applicable during RRES-R Program field operations.

4.2.2 Drug and Alcohol Policy

Personnel who take medications that may diminish their ability to perform their duties in a safe and healthful manner (e.g., medication that causes drowsiness or affects mental alertness or coordination) shall inform the UTR/FTL, SSO, or designee so that alternate job duties can be assigned until the employee is no longer affected by the medication.

Personnel who arrive intoxicated at the field site shall not perform their job duties. The UTR/FTL, SSO, or designee shall be notified of such an event so that the person's supervisor may be notified and take appropriate disciplinary action.

4.2.3 Housekeeping and Sanitation

An adequate supply of potable water shall be provided in labeled containers that are equipped with a tap and can be closed tightly. Nonpotable water shall be identified to indicate that the water is unsafe for drinking, washing, or cooking.

No food, beverage, gum, cosmetic, or tobacco products shall be present, consumed, or used in any region of a work zone where contamination (e.g., radiological, chemical, biological, etc.) is present or suspected.

Site personnel should be alert for dangerous situations, unusual odors, airborne dusts or vapors, and broken containers, and should report any potentially dangerous situations to their on-site line manager or SSO immediately.

4.2.4 Site Control Measures

Site personnel shall implement the following site control measures, as applicable:

- eliminate hazards to the extent possible before site fieldwork begins (e.g., remove unnecessary debris, guard exposed electrical wiring or protruding objects, and appropriately secure combustible materials and objects situated on elevated surfaces);
- minimize contact with material that is or may be contaminated, and work upwind of intrusive activities;
- minimize dust generation;
- plan and review procedures before entering controlled work zones;
- minimize the number of personnel and amount of equipment in controlled work zones;
- use the "buddy system" so that rapid assistance can be provided in an emergency, remaining in line-of-sight or direct communication with a "buddy" at all times while working in a controlled work zone;
- maintain appropriate fire extinguishers readily available for use when the potential for fire hazard exists, inspecting extinguishers to ensure they are fully charged at least monthly and comply with 29 CFR 1926.150 for annual inspections;
- store flammable and combustible materials so as to comply with 29 CFR 1926 Subpart F, keeping ignition sources 50 ft from explosive or flammable environments and 35 ft from

combustible liquids and using nonsparking, explosion-proof equipment when the potential for a flammable or explosive environment exists;

- refuel vehicles and equipment using means and methods that comply with 29 CFR 1926.152(e);
- remove any contamination from clothing or equipment by means other than blowing, shaking, or any other means that disperses contaminants into the air;
- remain alert for potential hazards and to traffic patterns associated with moving equipment and support vehicles;
- do not allow personnel underneath or, to the extent feasible, immediately adjacent to suspended loads; and
- handle drums and containers of unknown content or that may be shock sensitive, in accordance with 29 CFR 1926.65(j), as applicable.

4.2.5 Packaging, Labeling, Handling, Transporting, Storing, and Disposing of Hazardous Substances

Requirements and procedures for packaging, labeling, handling, transporting and/or disposing of hazardous materials and wastes shall be specified in the SSHASP or the site-specific waste management plan. For field operations where a site-specific waste management plan has not been prepared, these requirements and procedures shall be included in appropriate sections of the SSHASP.

Procedures shall meet applicable OSHA requirements of 29 CFR 1926.65(j), 29 CFR 1926.152, and applicable OSHA standards in 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z for substances that the SSHASP hazard assessment deems occupational health concerns. Procedures also shall meet applicable US Department of Transportation (DOT) requirements (49 CFR 106, 107, 130, and 171—180).

Hazardous materials and wastes shall be transported in accordance with relevant DOT requirements (49 CFR 106, 107, 130, and 171—180), including driver certification and registration (49 CFR 107 Subpart G). Hazardous wastes shall be labeled, stored, and inspected in accordance with 40 CFR 260—266, 268, 270.

5.0 SITE CONTROL

The SSHASP shall indicate necessary site-specific control measures, some of which are required by applicable DOE and OSHA requirements (e.g., standards in OSHA HAZWOPER and 29 CFR 1910 Subpart Z and 29 CFR 1926 Subpart Z). SSHASPs also shall include OSHA-required site maps for HAZWOPER projects to show the intended locations of specified controlled access zones and support facilities. Site maps should include

- site perimeter, prevailing wind direction, and drainage points;
- natural and man-made features such as buildings, containers, impoundments, pits, ponds, and tanks; and
- locations of work zones and/or contamination containment barriers.

Because work zones or facility locations may change as site work progresses, current locations of zones and decontamination stations shall be explained to project team members and other affected personnel during HS tailgate meetings and shall be documented (e.g., in a field logbook).

Descriptions of site controls shall indicate whether a zone or facility is restricted as a radiological controlled area (RCA), a radioactive-materials management area, or an OSHA-regulated area, and the related access control- and hazard-posting requirements. Whether the location of a work zone or a facility is centralized at a site or localized at multiple on-site work areas, the means for demarcating each zone, and other posting requirements also shall be indicated. Postings shall comply with applicable OSHA, Laboratory Radiation Protection Program, and ANSI requirements.

6.0 EXPOSURE MONITORING

Site-specific exposure-monitoring strategies, including action levels that meet applicable DOE and OSHA requirements, shall be specified in the SSHASP. Exposure-monitoring strategies, including establishing action levels, should be determined based on the site-specific hazards that can be monitored using analytical instrumentation and published exposure limits and the physical, chemical, and toxicological properties of the chemical, biological, and/or radiological substances of concern. The most current version of LIR 402-700-01, Occupational Radiation Protection Requirements, addresses radiological substances of concern.

HSR-1 shall determine requirements for monitoring and assessing occupational exposure to radiological hazards, in accordance with 10 CFR 835 and the most current version of LIR 402-700-01, Occupational Radiation Protection Requirements. The job-specific RWP (prepared by HSR-1) shall state job-specific radiological monitoring requirements and action levels (hold points).

6.1 Instruments, Methods, and Calibration

Exposure monitoring generally includes the use of direct-reading instruments, personal dosimetry, and personal and area sampling, as necessary, to evaluate the hazardous conditions posed by on-site chemical and radiological substances. In accordance with DOE and OSHA requirements, the SSHASP shall specify the following information for each type of instrument used for exposure monitoring:

- procedures for calibration, maintenance, and use;
- monitoring locations and frequencies ; and
- corresponding action levels, response actions, and rationales.

Where OSHA has mandated methods in the chemical-specific regulatory standards (29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z), such methods shall be specified in the SSHASP. Where OSHA has not mandated chemical-specific regulatory standards, the National Institute for Occupational Safety and Health (NIOSH) analytical methods or OSHA methods must be followed. HSR-5 may request that PMs who choose to use alternate methods provide a copy of those methods for review and approval (Section 1.2, Review and Approval of Health and Safety Documents).

Subcontractor radiological instrumentation services shall be conducted in compliance with requirements of the Laboratory Radiation Protection Program or the subcontractor's approved radiation safety program.

Core requirements for subcontractor radiological instrumentation services include

- Laboratory review, approval, and assessment of instrumentation services quality documents (e.g., quality assurance [QA] and quality control [QC] procedures);
- Laboratory (Health Physics Measurements Group [HSR-4]) approval of all fixed and portable radiation monitoring instrumentation used at the Laboratory; and
- instrumentation records.

Site HP personnel shall monitor for alpha and/or beta/gamma radiation as specified in the SSHASP or RWP and in accordance with their individual RSAAs and the mandatory Laboratory Radiation Protection Program documents. Site HP personnel shall use radiological instrumentation calibrated and maintained by HSR-4 or by an alternate means approved by HSR-4. Subcontractors shall abide by this requirement, unless the subcontractor's radiation safety program, which includes identification of instruments and corresponding procedures, has been approved by the Laboratory (Section 1.2, Review and Approval of Health and Safety Documents). All equipment leaving the site shall be monitored for release in accordance with the approved subcontractor's radiation safety program or the Laboratory Radiation Protection Program.

Subcontractors or the Laboratory shall document the results of exposure monitoring and inform affected personnel of these results in accordance with the requirements of Section 13.3, Employee Notification of Personal Exposure-Monitoring Results. Forms for recording radiological exposure-monitoring results shall be included in the subcontractor's radiation safety program or are available from HSR-1.

6.2 Analytical Laboratory Requirements

Analytical laboratories that analyze samples for chemical contamination for OSHA compliance purposes shall be accredited by the American Industrial Hygiene Association (AIHA). Bulk (solid) asbestos samples shall be collected by a certified asbestos inspector. Bulk asbestos samples shall be analyzed by an analytical laboratory that has successfully participated in a nationally recognized testing program (e.g., the National Voluntary Laboratory Accreditation Program, National Institute for Standards and Technology, or AIHA, or equivalent). Samples of airborne asbestos collected for OSHA compliance purposes shall be collected and analyzed according to 29 CFR 1926.1101 Appendix A. Furthermore, OSHA requires that analysts of airborne asbestos samples shall have completed the NIOSH course for sampling and evaluating airborne asbestos dust and that the laboratory must participate in the asbestos registry sponsored by the AIHA or the Proficiency Analytical Testing Program.

Analytical services for radiological analysis shall be conducted in compliance with requirements of the Laboratory Radiation Protection Program or the subcontractor's approved radiation safety program. Core requirements for radiological analysis services include Laboratory review, approval, and assessment of the providers' quality documents. Samples being analyzed for radiological contamination should be analyzed by the Laboratory's C Division, HSR-4 HP analytical laboratory, or a mobile extension thereof.

6.3 Personal Radiological Dosimetry

6.3.1 General Program Requirements

External dosimetry, internal (in vivo) dosimetry, and dose assessment services shall be conducted in compliance with requirements of the Laboratory Radiation Protection Program or the subcontractor's approved radiation safety program.

6.3.2 Site-Specific Requirements

HSR-1 and the Laboratory's Radiation Protection Services Group (HSR-12) shall review the draft SSHASP to determine the requirements for personal radiological dosimetry. Field personnel who are directly covered by the Laboratory Radiation Protection Program shall complete an HP checklist. Guidance for this process can be obtained from HSR-4. Enrollment in personal radiological dosimetry programs (in vivo and in vitro) will be based on requirements established in the SSHASP and/or the RWP, which have been approved by HSR-1. HSR-12 will provide reports of dosimetry results to individuals enrolled in this program by distributing the reports to the individuals in a confidential manner per Section 13.3, Employee Notification of Personal Exposure-Monitoring Results.

7.0 PERSONAL PROTECTIVE EQUIPMENT

The SSHASP and/or the RWP shall indicate task-specific PPE requirements that meet applicable OSHA requirements. However, before the use of PPE is required, appropriate administrative and engineering controls shall be implemented to mitigate hazards and protect site personnel.

Personnel shall not be allowed to use PPE unless the hazards have been assessed and the appropriate PPE has been specified in writing by a qualified HS professional. PPE requirements shall be based on a hazard assessment that includes a comparative evaluation of site conditions, task-specific operations, potential hazards relative to the performance characteristics of the PPE items, and expected duration of use (Section 4.1, Hazard Assessment).

Personnel who use PPE shall be trained to recognize the limitations of the equipment and to properly select, fit, use, inspect, maintain, and store the equipment. Typically the employer conducts such training and documents it before the user enters an area requiring the use of PPE.

Where OSHA has mandated PPE in the chemical-specific regulatory standards of 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z, the SSHASP shall specify such PPE as requirements, as applicable. Personnel who use Anti-Cs shall have successfully completed RadWorker II training (Section 10.2.3, RadWorker II) or shall be escorted by qualified personnel who have completed RadWorker II training.

When site conditions or operations change significantly, a qualified HS professional, the SSO, or RCT shall reassess PPE requirements. As needed, HSR-1 shall update the RWP to reflect revised PPE requirements; the subcontractor or the Laboratory shall update the SSHASP to reflect revised PPE requirements.

Each PPE user is responsible for inspecting the equipment before, and as necessary during, each use. A qualified person shall periodically monitor personnel who wear PPE to ensure that they are adequately protected.

7.1 Respiratory Protective Equipment

Use of respiratory protection shall comply with requirements of 29 CFR 1910.134, the ANSI standard for respiratory protection (ANSI Z88.2-1992), this HSRM, and the applicable SSHASP. Where OSHA mandates respiratory protection, requirements in the chemical-specific standards 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z the SSHASP shall specify such requirements, as applicable. Personnel who are required to use respirators shall maintain current certifications of training, medical fitness, and respirator fit-testing in accordance with these requirements, which are summarized in this section.

Subcontractors whose employees use respirators to perform RRES-R Program work shall document compliance with each aspect of the mandated standards.

Employers of personnel who wear respirators to perform RRES-R Program work shall maintain and implement a current written respiratory protection program that addresses the requirements described below, unless the employer opts to abide by the Laboratory Respiratory Protection Program. When atmosphere-supplying respiratory protection will be used, project-specific SOPs addressing the requirements and procedures for using the equipment shall be submitted for HSR review and approval.

Any topics addressed in this section that are addressed sufficiently in the subcontractor's HAZWOPER program need not be repeated in the subcontractor's respiratory protection program. This information should be cross-referenced appropriately and supplemented by application-specific information as necessary (e.g., respirator type/model-specific training).

7.1.1 Designated Qualified Person

Respiratory protection programs shall include designation of a qualified individual who supervises the respiratory protection program in accordance with 29 CFR 1910.134(e)(2) and (e)(4) and Section 3.3.3.6, Other Competent or Qualified HS Personnel.

7.1.2 Implementation of Administrative and Engineering Controls

OSHA requires each employer whose personnel use respiratory protection to (1) describe the administrative and engineering controls they will follow to prevent or minimize employee exposure to atmospheric contamination and (2) state that respiratory protection shall be used in accordance with applicable requirements when administrative and engineering controls are not feasible or while such controls are being implemented and evaluated.

7.1.3 Use of Approved Equipment

Respiratory protection shall be selected from equipment approved by NIOSH or NIOSH and the Mine Safety and Health Administration (MSHA). The subcontractor's program shall identify the type of equipment (manufacturer and model) to be used and the associated NIOSH or NIOSH/MSHA approvals.

7.1.4 Standard Operating Procedures

Each written respiratory protection program shall include SOPs that govern the selection, use, cleaning, maintenance, inspection, and emergency use of respirators; training of supervisors and respirator wearers; and recordkeeping. Respiratory protection plans prepared by subcontractors should provide enough information that Laboratory reviewers understand the decision logic for selecting and using a particular kind of respirator. This information should include a hazard identification and evaluation process (including oxygen-deficient conditions and conditions immediately dangerous to life or health [IDLH]) and a corresponding respirator-selection process. When required by other regulations (e.g., 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z), these evaluations shall include historical sampling data or other methods of assessing exposure (Section 4.1, Hazard Assessment).

7.1.5 Respirator Users' Medical Status

Employees shall not be assigned to perform tasks that require the use of a respirator unless the employee has had an annual medical exam that demonstrates his or her ability to perform work while

using the respirator. The employee shall obtain the written opinion of a physician or other licensed health care professional (preferably one specializing in occupational medicine) verifying that the employee is able to wear a respirator (Section 11.0, Medical Surveillance). The physician or other licensed health care professional shall determine which health and physical conditions are pertinent.

7.1.6 Training

Respirator users shall be instructed and trained in the limitations and proper use of respiratory protection equipment by a competent person (Section 3.3.3.6, Other Competent or Qualified HS Personnel). Additionally, the supervisor or SSO and the respirator issuers shall be trained in the proper use, maintenance, and storage of respirators and their limitations. Subcontractors must maintain a written outline of the training provided to their employees.

7.1.7 Fit-Testing

Only individuals who have been trained and fit-tested for the specific manufacturer and model of respirator face piece being used may use the respirator while performing RRES-R Program work. Fit-tests shall be conducted in accordance with 29 CFR 1910.134.

7.1.8 Work Area Surveillance

Appropriate surveillance of work-area conditions and degree of employee exposure or stress shall be maintained by a qualified person (e.g., SSO, industrial hygiene technician, RSP, HPT, or RCT). This requirement can be satisfied by assessing hazards and monitoring exposure (Sections 4.0, Hazard Analysis, and 6.0, Exposure Monitoring). Subcontractors may use a combination of engineering analysis and air sampling data to document conditions.

7.1.9 Cleaning and Disinfection

Respirators shall be cleaned and disinfected as frequently as necessary to ensure that the user is properly protected. Respirators used by more than one worker or intended for emergency use shall be thoroughly cleaned and disinfected after each use. The respiratory protection program should outline the cleaning and disinfection methods and frequencies used to ensure complete cleaning and disinfection.

7.1.10 Inspection and Repair

Users shall inspect respirators that are used routinely before each use and after each cleaning. Respirators used for emergencies shall be inspected by a qualified person at least monthly and after each use. Worn or deteriorated parts shall be replaced.

7.1.11 Storage

Respirators shall be stored in a convenient, clean, and sanitary location and in a manner that prevents damage during storage. A brief description in the SSHASP of how the subcontractor intends to handle this issue is sufficient.

7.1.12 Quality Assurance

Regular inspections and evaluations to determine the effectiveness of the respiratory protection program shall be conducted. This can be accomplished through the use of documented checks by a designated knowledgeable supervisor, an outside agency, or an independent consultant.

7.2 Other Respiratory Protection Requirements

In addition to the above outlined requirements, other requirements identified in the OSHA standard may need to be addressed in the subcontractor's respiratory protection program. Examples include breathing-air quality and equipment associated with any atmosphere-supplying respirators (e.g., hoses, compressors, air-line couplings, and containers); and emergency egress from environments with actual or potential IDLH atmospheres. The subcontractor shall provide information that Laboratory reviewers need to verify regulatory compliance.

In accordance with the ANSI standard for respiratory protection (ANSI Z88.2-1992), the Laboratory requires the collection of periodic air samples from air compressors used to produce breathing air. These samples shall be collected as part of acceptance testing of a compressor and periodically during use. The quality of breathing air shall meet or exceed the specifications for Grade D air described by the ANSI/Compressed Gas Association (ANSI/CGA G-7.1-1997).

8.0 DECONTAMINATION

Each HAZWOPER project SSHASP shall include procedures for personnel and equipment decontamination. The SSHASP or other project-specific documents or records also shall include site-specific variances from general procedures. The following general requirements apply to personnel and equipment decontamination processes for RRES-R Program work at HAZWOPER sites.

- Personnel, equipment, and vehicles shall be decontaminated, as necessary, before they exit the contamination reduction zone (CRZ). Clothing and equipment that cannot be decontaminated sufficiently shall be properly contained and labeled before transfer beyond controlled work zones. For sites with only radiological contamination, it is appropriate to screen first for radiological contamination to determine whether decontamination is necessary.
- If any significant contamination is encountered, PPE should be disposed of rather than decontaminated for reuse.
- Loose contaminants (dusts and vapors) that cling to clothing or equipment shall be removed according to applicable decontamination procedures (e.g., using water or a water-based detergent rinse and scrub brush).
- Care shall be taken to avoid generating mixed (chemical and radiological) waste during decontamination operations.
- Rinse water and waste generated on the site shall be contained, stored, and disposed of in compliance with applicable regulations.

When a centralized pad or facility will be established for decontaminating heavy equipment (e.g., drill rigs, augers, loaders), the SSHASP shall identify site-specific procedures for transporting equipment from the work site to the centralized facility in a manner that minimizes the potential for spreading contamination.

Decontamination activities shall be monitored periodically by a qualified person to determine their effectiveness. If procedures are ineffective, steps shall be taken to correct deficiencies.

8.1 Disposal Versus Laundering of PPE

Used PPE shall not be transferred into uncontaminated areas of the site unless it has been appropriately screened for contamination, packaged, and labeled as necessary. Used PPE should be handled and temporarily stored pending analytical results as though it is suspect contaminated waste.

Although protective clothing may be disposable or nondisposable, at some Laboratory work sites disposable protective clothing may be reused. However, even at sites where the types and concentrations of contaminants are insignificant and work activities are not strenuous, disposable protective clothing should be disposed of at least weekly because of wear and tear that may compromise the integrity of the protective material.

Nondisposable protective clothing (e.g., cotton coveralls) should be laundered at least weekly. Such PPE shall be placed in a labeled container before transfer to a designated laundry facility for cleaning and eventual reuse. The SSHASP or other project-specific documents shall list special instructions for packaging, labeling, transporting, and cleaning nondisposable PPE.

8.2 Special Procedures for Decontaminating Radiologically Contaminated PPE and Equipment

When radiological contamination is detected above background levels, project personnel shall contact HSR-1 before the contaminated item is removed from the RCA or exclusion zone (EZ). Decontamination or disposal of PPE or equipment shall be conducted in accordance with the requirements of the subcontractor's Laboratory-approved radiation safety program or the Laboratory Radiation Protection Program.

8.3 Emergency Decontamination of Personnel

Emergency decontamination of personnel is discussed in Section 9.3, Procedures for On-Site Responders.

9.0 EMERGENCY PLAN

This section describes generic aspects of the emergency/incident action plan that apply to all field operations of the RRES-R Program. The SSHASP shall provide site- and facility-specific details of this plan and the equipment and supplies needed to execute them. The SSHASP shall include the personnel who will enact the emergency/incident action plan, their required training, and the equipment and supplies that shall be kept on-hand at the site.

This section has been developed to meet the requirements of 29 CFR 1926.24 and 29 CFR 1926.65(l), and as applicable, 29 CFR 1926.35(b) or 29 CFR 1926.65(q). It addresses general emergency/incident contingency planning, response action, and personnel and equipment requirements that shall be addressed in each SSHASP.

> Note: The person who prepares the SSHASP shall understand whether the SSHASP shall contain an emergency action plan (in compliance with 29 CFR 1926.35) or an emergency response plan (for work at uncontrolled hazardous waste sites in compliance with 29 CFR 1926.65(l)).

The UTR/FTL, SSO, or designee shall direct and coordinate emergency response until off-site emergency responders arrive and implement the incident command system. DOE and OSHA require regular rehearsals of site emergency plans as part of the overall training program for site operations. Therefore, on the first day of on-site operations the emergency plan shall be rehearsed with all field team members. Also, OSHA requires that off-site emergency responders such as the fire department, hazardous materials team and Laboratory emergency management and response (EM&R) be notified in advance of initiating field activity where there is the likelihood that off-site responders may be required.

On-site spills or releases of hazardous substances shall be handled in accordance with applicable requirements of this section and with the SSHASP.

9.1 Posting Requirements

At the start of field operations, emergency contacts and phone numbers, reporting information, emergency equipment, and route maps to the Los Alamos Medical Center and to the Laboratory Occupational Medicine Group (HSR-2) shall be posted at a location on-site where personnel may readily access this information. This site-specific information also shall be included in the SSHASP.

9.2 Emergency Alerting and Site Evacuation Procedures

The UTR/FTL, SSO, or designee shall determine site-specific emergency alerting procedures, evacuation procedures and routes, and muster-area locations. This information shall be included in the SSHASP and shall be communicated by the UTR/FTL, SSO, or designee to on-site personnel during the pre-job-start HS briefing and/or tailgate HS meetings. Evacuation routes and muster areas should be predominately upwind, uphill, and upstream of work areas where fire or release of chemicals or radiological contaminants might occur.

An employee alarm system shall be specified in the SSHASP and shall be established at the work site in compliance with 29 CFR 1926.159 or 29 CFR 1926.65(l)(3)(vi), as applicable. The SSHASP also shall include ways to inform off-site management and emergency response personnel about on-site events that could pose a threat to the FMU or adjacent facilities, and for designated FMU personnel to inform on-site personnel about similar events or operations. The phone numbers or radio stations of contact personnel (the facility manager or designee) at adjacent facilities also shall be included in the list of emergency contacts included in the SSHASP.

If an incident necessitates evacuation,

- the UTR/FTL, SSO, or designee should alert off-site personnel of the emergency situation in accordance with the most current version of LIR-402-130-01, Abnormal Events;
- personnel shall evacuate the site according to procedures established during the pre-job-start HS briefing or tailgate meeting, and assemble at the designated muster area;
- the UTR/FTL, SSO, or designee shall account for all on-site personnel at the muster area to determine whether any personnel are missing; and
- evacuated personnel shall remain at the muster area until the reentry alarm is sounded or an authorized individual provides further instruction.

9.3 Procedures for On-Site Responders

On-site personnel who are trained and equipped to respond to incidents in accordance with Section 9.0, Emergency Plan, shall

- establish a communication center, make appropriate notifications per the most current version of LIR 402-130-01, Abnormal Events, and maintain telephone or radio communication with appropriate off-site support experts.
- arrange for personnel to meet and direct off-site responders to the site.
- assess existing and potential on-site hazards to personnel and the environment and to off-site individuals, property, and facilities; isolate the incident or emergency area; and prohibit access by unauthorized people.
- as feasible, perform rescue, first aid, and/or cardiopulmonary resuscitation (CPR) duties as trained.
- to the extent possible and necessary, conduct emergency decontamination (Section 9.3, Procedures for On-Site Responders).
- treat all releases of unknown substances as highly toxic or hazardous and contact Laboratory EM&R.
- stop, retard, and/or contain the source and flow of hazardous discharge to the extent possible and necessary using available on-site equipment and supplies with which response personnel have been sufficiently trained to use for emergency response purposes. Examples of such actions include applying absorbent materials (e.g., spill pillows, vermiculite, sand, or dirt) and/or constructing berms or dikes at a safe distance around the spill or leak source.
- record the chain of events, including times of occurrence.

9.3.1 First Aid and Emergency Medical Treatment

Before field operations commence, provisions shall be made for prompt medical attention in case of serious injury or illness, in accordance with 29 CFR 1926.50. If no hospital or clinic is reasonably accessible (i.e., capable of rendering treatment within 4 min of occurrence of the injury or illness), a person who is certified in first aid (from the American Red Cross or equivalent) shall be available at the work site at all times to render first aid, and an on-site vehicle shall be maintained to transport victims off the site for medical treatment. If victims are transported in private/government vehicles, attempts will be made to establish a medical intercept (i.e., a place to meet emergency vehicles such as fire trucks and ambulances) to facilitate the application of appropriate medical attention. As necessary, appropriate medical emergency response supplies and equipment (e.g., first aid and blood-borne pathogen kits) shall be maintained on the site. The first aid kits shall be physician-approved and must meet the ANSI standard for industrial unit-type first aid kits (ANSI Z308.1-1998).

A plutonium wound count is required if a wound occurs in a work area where plutonium (or another alpha-emitting transuranic) is a suspect contaminant and if

- alpha contamination is found in the vicinity of the wound;
- alpha contamination is found on the object that caused the wound;

- the object that caused the wound cannot be monitored but is suspected, for any reason, of being plutonium-contaminated; and,
- the worker or her/his supervisor specifically requests a plutonium wound count.

Both the Laboratory's Occupational Medicine Group (HSR-2) and the Los Alamos Medical Center (LAMC) decontamination facility are capable of performing plutonium wound counting.

Emergency eyewashes and/or showers shall be located within a 10-sec travel time and not more than 100-ft travel distance from any work area with potential chemical splash hazards from substances that are caustic, corrosive, or toxic by skin absorption exist. Each unit shall have the capacity to provide continuous flushing for the time needed to sufficiently flush the most hazardous substance for which a device is specified. Emergency eyewashes and/or showers also shall be inspected and flushed following the manufacturers instructions (ANSI Z358.1-1998).

Life-Threatening Illness/Injury

Victims who sustain life-threatening injuries or illness must receive life-saving care as soon as possible. If the victim has been contaminated by an extremely toxic or corrosive material that could cause severe injury or loss of life either to the victim or to the people administering first aid, the victim should be decontaminated immediately in as safe and effective a manner as possible. Personnel experiencing a life-threatening medical crisis shall not be decontaminated if decontamination would result in greater danger to the victim.

In life-threatening situations, qualified persons should

- implement appropriate first aid procedures and immediately phone 911 and EM&R.
- take measures to prevent further damage or injury.
- make notifications defined in the most current version of LIR 402-130-01, Abnormal Events, and RRES management notification procedure for significant accidents/facility incidents (located at http://em.lanl.gov/Downloads/Safety%20&%20Security/CallDownList_for_RRES.pdf). EM&R and RRES management will determine what other notifications are required, including but not limited to the DOE; the Laboratory's Occurrence Reporting Group (PS-7) of the Performance Surety (PS) Division; HSR-1, HSR-2, HSR-5; and facility management.

Non-Life-Threatening Illness/Injury

If an on-site incident necessitates medical care, the worker shall report to HSR-2 or LAMC for initial evaluation and care as soon as possible and the UTR/FTL, SSO, or designee shall arrange for notification to EM&R and the employees' immediate supervisor.

In all instances that result in lost workdays, Laboratory employees shall report to the HSR-2 before resuming regular work duties. Subcontractors shall abide by company-specific protocols before returning to work.

Hazardous Substance Exposure

In the event of an injury or an illness with symptoms of over exposure to hazardous substances, qualified coworkers should provide first aid to the victims immediately; ensure notifications required by the most current version of LIR 402-130-01, Abnormal Events, are made; and transport the victims, as appropriate for initial medical evaluation and triage, to HSR-2 or LAMC. At sites that have radiological substances of

concern, injuries resulting in dermal abrasions where the outer surface of the skin is broken shall be evaluated by HSR-2 or LAMC.

Exposure to Blood or Body Fluids

Anyone who renders first aid that involves exposure to another person's blood or body fluids may be at risk of exposure to disease that may be transmitted through contact with that blood or body fluid. Laboratory and non-Laboratory employees who have rendered occupational first aid or CPR and have been exposed to another person's blood or body fluids shall immediately report to the HSR-2 or LAMC. In addition, non-Laboratory employees who have rendered first aid or CPR also shall notify their management or company HS representative to determine appropriate follow-up action in accordance with their employer's blood-borne pathogen program.

9.3.2 Reporting Emergencies/Incidents

Guidance for emergency notifications is provided in the most current version of LIR 402-130-01, Abnormal Events. Accidents, emergencies, incidents, injuries, and illnesses shall be reported as soon as possible to the PTL, the HSR-5 representative, and if radiological exposure is involved, the HSR-1 representative. Additionally, notifications shall be made in accordance with the RRES management notification procedure for significant accidents/facility incidents. If an emergency necessitates medical care, key personnel listed in the SSHASP (other line managers and the employee's manager) shall be notified as soon as possible.

Subcontractors shall notify their Laboratory contract administrators within 24 hr of all OSHA recordable injuries/illnesses and/or any loss or damage to government property. Copies of all accident and injury/illness reports and investigations shall be sent to the HSR-5 representative.

9.4 Response Critique and Follow-up

Before normal site activities are resumed, the PTL or designee shall evaluate the incident or emergency to determine

- the cause;
- effectiveness of emergency/incident planning, preparedness, and response;
- how the emergency or incident could have been prevented; and
- considerations for improvements of the emergency/incident response plan.

The evaluation should include whether procedures were adequate and implemented correctly. Before normal site activities resume, emergency equipment and supplies shall be restocked and emergency equipment and systems shall be inspected, tested, and reset.

10.0 TRAINING

This section describes applicable DOE, OSHA, and Laboratory HS training requirements. In accordance with applicable OSHA training requirements, project team personnel shall have the training required to perform their tasks. Before the UTR/FTL, SSO, or designee tasks a project team member with performing an RRES-R Program field task, they shall verify that the project team member has current certifications of required training. Laboratory employees (including Laboratory contract employees) are eligible for any

Laboratory courses offered by the Laboratory's ESH Training Group (PS-13) and the Property Management Group (BUS-6) of the Business Operations (BUS) Division. Subcontractors to the RRES-R Program are responsible for implementing their own training programs. With the exception of Laboratory-specific training described under Section 10.2, Laboratory-Specific Requirements, training offered by PS-13 is available to RRES-R Program subcontractors for a fee, and only by referral of a PTL. BUS-6 training also is available to RRES-R Program subcontractors for a fee.

10.1 General Requirements

The training requirements discussed in this section apply to all RRES-R Program field operations.

10.1.1 Pre-Job-Start HS Briefing

The SSO or a qualified HS professional shall conduct SSHASP training before fieldwork begins so that each project team member is informed of site-specific information and requirements applicable to the scope of work. This HS briefing shall cover the SSHASP and applicable portions of this HSRM. The SSO or designee shall document both topics and attendance on the acknowledgement form (see Appendix D).

10.1.2 Tailgate HS Meetings

Before beginning each day of fieldwork, and as necessary during the day, the UTR/FTL, SSO, or designee shall conduct a tailgate HS meeting to inform personnel of

- newly identified hazards, associated monitoring and exposure control measures, and explosives monitoring results not discussed previously, and
- problems or concerns (especially HS) identified since the previous tailgate meeting.

Field team members should be encouraged to discuss any HS-related concerns during this meeting without fear of reprisal. The SSO or designee shall use a logbook to document HS topics and attendance at tailgate meetings.

10.1.3 First Aid/CPR and Blood-Borne Pathogens

In accordance with 29 CFR 1926.50, in the absence of a hospital or clinic that is capable of rendering treatment within 4 min of the occurrence of an injury or illness, a person with a valid first aid training certificate from the American Red Cross (or equivalent) shall be available at the work site to render first aid. In addition, requirements of 29 CFR 1910.1030 (e.g., training, a written blood-borne pathogen control program, hepatitis-B vaccination) apply to any employee expected to render on-the-job first aid or CPR. Section 9.3.1, First Aid and Emergency Medical Treatment, contains more detailed information concerning first aid during emergency response.

10.1.4 Site Safety Officer

SSOs shall have the training required to develop SSHASPs and to implement applicable SSHASP and HSRM requirements. Appendix F contains guidance criteria for determining SSO training qualifications.

10.1.5 Industrial Hygiene Technician

Industrial hygiene technicians shall have the training required to perform their assigned tasks and responsibilities (Section 3.3.3.2, Industrial Hygiene Technician).

10.1.6 Health Physics Personnel

In accordance with applicable DOE, OSHA, and Laboratory requirements, HP personnel shall have the training required to develop and implement HP-related sections of applicable SSHASPs and to implement applicable HSRM requirements. This training shall include the training required by HSR-1 for issuing an RSAA (Section 3.3.4, Health Physics Personnel).

10.1.7 Other OSHA-Required Personnel

Numerous other OSHA standards and training requirements apply to RRES-R Program work. Some apply at a programmatic level and are addressed in Section 1.2.1, General Programs, Plans, Procedures, and Permit Systems. Others apply to individuals who are either competent or qualified in the subject matter pertaining to their job functions (Section 3.3.3.6, Other Competent or Qualified HS Personnel), and/or as defined by applicable operation- or substance-specific standards (29 CFR 1926 and/or 29 CFR 1910) that are referred to throughout this HSRM and SSHASP. Examples of these types of training are those for extinguishing fire, confined-space entry, lockout/tagout of energized equipment, electrical safety, trenching and excavation, respiratory protection, and blood-borne pathogen exposure control.

10.2 Laboratory-Specific Requirements

This section contains Laboratory-specific training requirements that apply to personnel who perform specific job functions at the Laboratory. The Laboratory will provide training referenced in this section to RRES-R Program participants at no cost to the trainee's employer and without prior PTL authorization.

10.2.1 General Employee Training

Current Laboratory General Employee Training certification is required for (1) anyone who performs RRES-R Program fieldwork and will be on the site (or a combination of sites) for more than 10 workdays in a 12-month period, and (2) all workers whose job assignments require unescorted access to nuclear facilities and/or RCAs. PS-13 provides this Laboratory-specific training.

10.2.2 Health and Safety Read Training

All employees are responsible for reading SSHASP- and OSHA-specific safety-training documents, including general employee RadWorker II training, before they are allowed access to restricted areas.

10.2.3 RadWorker II Training

Before beginning work at a site where radiological hazards exist or are expected, all personnel shall have completed the Laboratory RadWorker II training provided by PS-13. Individuals who have completed this training at other sites in the DOE complex within the previous 2 yr may transfer the core training and practical exercise, but must complete the Laboratory self-study site-specific RadWorker II training provided by PS-13. Each individual shall requalify in RadWorker II training every 2 yr while performing work at a site where radiological hazards exist or may be expected.

10.2.4 Waste Generator and Waste Management Training

Waste management coordinators and generators of hazardous and mixed waste who complete waste profile and waste disposal forms are required to complete the Laboratory waste documentation form training.

10.2.5 FMU-Specific Training

Some FMU-specific training is required for certain project team and support personnel before they are allowed access to a project site within an FMU. The facility manager or designee shall be contacted to determine the necessary training.

Examples of this type of training are the read-and-sign training for entry into the FMU 70 explosives area (S-Site) and the computer-based, site-specific training at TA-50.

10.3 DOT Requirements

Individuals whose job functions involve transporting hazardous substances are required to comply with 49 CFR 172.700—704 training requirements; at a minimum, they must complete the hazardous materials packaging and transportation initial and general awareness safety training courses. Additional training is required for shippers and drivers of hazardous substances. BUS-6 provides this training to subcontractors for a fee. Equivalency for non-Laboratory courses is subject to BUS-6 approval.

10.4 RCRA Requirements

Waste management coordinators; hazardous and mixed waste generators; treatment, storage, and disposal facility (TSDF) workers; and less-than-90-day-storage-area workers are required to complete US Environmental Protection Agency (EPA)-defined training (40 CFR 260—266, 268, 270). These individuals shall have completed a waste generation overview. In addition, TSDF, and less-than-90-day storage-area workers shall complete Resource Conservation and Recovery Act (RCRA) personnel training and an annual RCRA refresher or equivalent.

10.5 HAZWOPER Requirements

All employees at a HAZWOPER site who may be exposed to safety or health hazards associated with hazardous waste operations and their on-site supervisors and managers shall be trained to the requirements of 29 CFR 1926.65 or 29 CFR 1910.120 before they will be permitted to engage in HAZWOPER work. Employees may not participate in or supervise RRES-R Program field activities until they are trained to the level required by their job functions and responsibilities.

Employees and supervisors who successfully complete the training and field-experience requirements of this section shall be certified in writing by their instructor (or head instructor) and trained supervisor.

Trainers shall be qualified to instruct employees about the subject matter that they present. Trainers shall have the academic credentials and instructional experience required for teaching those subjects, or have completed a training program for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the subject matter.

Employers who can document or certify that an employee's work experience and/or training is equivalent to the training requirements in this section shall not be required to provide the initial training requirements

of Sections 10.5.3, Management or Supervisor Training, or 10.5.4, Annual Refresher Training. The employer shall certify this equivalency in writing and provide a copy to the employee.

If a PM chooses to have on-site personnel take any action other than immediate evacuation during a release or substantial threat of release of a hazardous substance, such personnel shall be trained as described in Sections 10.5.1, Initial 40-Hour Training and 24-Hour Supervised Field Experience, and 10.5.2, Initial 24-Hour Training and 8-Hour Supervised Field Experience, as applicable. OSHA requires that personnel who have been trained in accordance with this section shall receive annual refresher training sufficient to maintain competency, or shall demonstrate competency at least yearly. HAZWOPER training requirements for initial and refresher training shall be consistent with the most recent Laboratory policies.

10.5.1 Initial 40-Hour Training and 24-Hour Supervised Field Experience

Individuals engaged in HAZWOPER activities that expose or potentially expose them to hazardous substances and HS hazards shall receive a minimum of 40 hr of off-site instruction and 24 hr of field experience under the direct supervision of a trained, experienced HAZWOPER supervisor.

10.5.2 Initial 24-Hour Training and 8-Hour Supervised Field Experience

Training requirements described in this section pertain to individuals who likely will not be exposed to hazardous substances at levels above published exposure limits and who are

- on the site only occasionally to perform specific, limited tasks (e.g., ground water monitoring, land or geophysical surveying); and
- regularly work on the site only in areas that are monitored and characterization indicates (1) that exposures are under published occupational exposure limits and (2) the characterization indicates that no potential health hazards or potential for emergencies.

Individuals engaged in these HAZWOPER activities shall receive a minimum of 24 hr of off-site instruction and a minimum of 8 hr of actual field experience under the direct supervision of a trained, experienced HAZWOPER supervisor. Individuals who have received this training and who subsequently are expected to perform work described in Section 10.5.1, Initial 40-Hour Training and 24-Hour Supervised Field Experience, shall complete an additional 16 hr of off-site training and 16 hr of supervised field experience.

10.5.3 Management or Supervisor Training

Managers and on-site supervisors of employees engaged in HAZWOPER work shall receive initial training (Sections 10.5.1, Initial 40-Hour Training and 24-Hour Supervised Field Experience, or 10.5.2, Initial 24-Hour Training and 8-Hour Supervised Field Experience, as applicable) and at least 8 hr of additional specialized training at the time of job assignment on such topics as, but not limited to, the employer's, and where appropriate, the Laboratory's

- HS program and associated training program;
- PPE program;
- spill containment program, and
- health hazard monitoring and techniques.

10.5.4 Annual Refresher Training

Individuals who have received the initial training in accordance with previous sections shall receive 8 hr of annual refresher training on identifying

- personnel and alternates responsible for the employer's HAZWOPER HS program;
- safety, health, and other hazards related to HAZWOPER work;
- PPE use;
- work practices by which the employee can minimize risks of exposure to hazards;
- safe use of engineering controls and equipment;
- medical surveillance requirements;
- relevant information in a model or example SSHASP; and
- applicable topics in Section 10.5.3, Management or Supervisor Training.

Consistent with OSHA interpretations, completing management or supervisor training (Section 10.5.3, Management or Supervisor Training) does not satisfy this training requirement.

11.0 MEDICAL SURVEILLANCE

Before the UTR/FTL or SSO authorizes access to areas of a site where controls have been established (e.g., EZs, CRZs, RCAs, and OSHA-regulated areas), the subcontractor verifies that personnel entering such areas have a current certification of medical evaluation and clearance in compliance with OSHA, DOE, and Laboratory requirements. Site-specific medical surveillance requirements shall be specified in the SSHASP.

A written medical surveillance program shall be implemented by employers of personnel working for the RRES-R Program (Appendix C). The following employees shall be active participants in their employer's approved medical surveillance programs:

- employees who are or may be exposed to hazardous substances or health hazards at or above OSHA action levels or other applicable published exposure limits;
- employees who wear respirators during performance of work; and
- employees who are injured, become ill, or show signs or symptoms of possible overexposure to hazardous substances or who may be exposed to health hazards during performance of work regulated by 29 CFR 1910.95 (noise); HAZWOPER (29 CFR 1910.120 or 29 CFR 1926.65); or applicable OSHA standards in 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z.

11.1 Cost and Frequency of Examinations

Through their employers, all personnel shall have access to consultations with and medical examinations by a physician or other licensed health care professional (preferably one knowledgeable in occupational medicine) at a reasonable time and place, without cost to or loss of pay by the employee. These services shall be available

- at least as frequently as specified in the applicable OSHA or DOE standard, unless the examining physician believes a shorter or longer duration is needed or appropriate.
- at termination of employment or upon reassignment to nonregulated work if the employee has performed fieldwork with potential for exposure since his or her last exam. If a termination examination is not performed, a written explanation shall be placed in the employee's medical file.
- as necessary for evaluating and treating occupational injuries.
- as soon as possible after notification that the employee has incurred a puncture wound at a job site where radiological contamination exceeds background levels, has been exposed to concentrations of contaminants above permissible or published exposure limits, or has developed symptoms of possible overexposure to hazardous substances or health hazards during performance of work.
- at additional times for follow-up examinations or consultations as determined by the examining physician.

11.2 Content of Examinations

Initial (baseline) and annual medical examinations shall include at least the examinations and/or tests specified in applicable OSHA or DOE standards. The examining physician shall determine the content of periodic and termination examinations so that any changes from baseline examination results can be assessed.

11.3 Information Provided to the Examining Physician

Together with the physician certification of medical evaluation form, the employer shall provide the following, as applicable, to the examining physician:

- a copy of "Access to Employee Exposure and Medical Records Standard" (29 CFR 1910.1020), the respiratory protection standard (29 CFR 1910.134), the occupational noise-exposure standard (29 CFR 1910.95), the HAZWOPER standard (29 CFR 1910.120 or 29 CFR 1926.65), and/or applicable OSHA standards in 29 CFR 1926 Subpart Z or 29 CFR 1910 Subpart Z;
- a description of the employee's duties as they relate to the employee's exposure;
- the employee's actual or anticipated exposure levels;
- a description of PPE (especially equipment for respiratory protection) actually or reasonably anticipated to be used during performance of work; and
- information from previous employee medical examinations not readily available to the examining physician.

11.4 Information from the Evaluating Physician

The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician. This shall include

- the physician's opinion as to whether the examination revealed any medical conditions that would increase risk to the employee's health from assigned work (specifically noting compliance with applicable regulations);
- the physician's recommended limitations to the employee's assigned work; and
- a statement that the physician has informed the employee of the results of the examination and a list of any medical conditions that require further examination or treatment.

The written opinion provided to the employer shall not reveal findings or diagnoses unrelated to occupational exposures. The confidential results of the medical examination and tests shall be kept by the examining and/or evaluating physician, not the employer (unless the employer has a physician on staff who conducts medical evaluations). The results of the examination and tests shall be provided to the employee by the physician when requested in writing by the employee, at no cost to the employee in accordance with Section 13.2, Employee Exposure and Medical Records.

12.0 QUALITY CONTROL AND QUALITY ASSURANCE

12.1 Site Inspections

The subcontractor shall inspect the work site in a manner and at a frequency sufficient to identify hazards and instances of noncompliance with project HS requirements, but not less than daily.

Laboratory managers shall inspect field projects in accordance with the most current version of LIR 307-01-03, Management Safety Walk-Around.

The inspector shall keep records of inspections (noting hazards, the corrective actions taken, or lack of hazards). Site-specific inspections shall be performed by qualified or competent persons (Section 3.3.3.6, Other Competent or Qualified HS Personnel) and the frequency of inspections shall be specified in the SSHASP.

12.2 RRES-R Program HS Oversight

In accordance with recordkeeping requirements of Section 13.0, Recordkeeping, RRES-R Program participants shall provide access to and/or furnish all documentation necessary to Laboratory or its agents, to verify compliance with requirements of this HSRM, this SSHASP, or any applicable law or regulation. This support shall include maintenance of appropriate HS records at the site as required by this HSRM, SSHASP, or any applicable regulatory requirement, or as the PTL deems necessary.

RRES-R Program participants shall support initial and periodic in-process verifications of compliance with applicable requirements. Initial verifications will consist of reviewing (1) applicable programmatic and project-specific HS documents, including any necessary supplements (e.g., individual verification records for training, medical examinations) and (2) the employer’s program or written procedures that verify the existence of and compliance with applicable requirements. The periodic in-process verifications will include verification of RRES-R Program participants’ records to demonstrate compliance with this HSRM and SSHASP requirements and applicable regulations. In-process inspections will be conducted primarily

at field sites, but may include the requirement to furnish all current documentation, even if it is not present at the field site.

The PTL, or designee, and/or representatives of HSR Division may conduct verifications and inspections. Occasional verification by the Laboratory Audits and Assessments Office or the DOE may be required.

RRES-R Program participants are advised that the inspection results will be in writing and submitted to the Laboratory. A copy of the results also will be furnished to the affected employers for resolution of any discrepancies.

If during verification a circumstance is discovered that presents a threat of serious injury or death, notice will promptly be provided to the affected on-site supervisor and to the PTL for action as directed in Section 3.6, Stop-Activity and Stop-Work Orders.

13.0 RECORDKEEPING

13.1 Site Records

A record of daily HS-related events shall be documented and kept on-site (e.g., in a bound logbook and/or on suitable forms). The FTL or designee (e.g., an SSO) shall verify employee training and medical surveillance records. HP personnel shall keep records of HP-related events in accordance with requirements of their RSAA (Section 3.3.4, Health Physics Personnel). All training records shall be maintained and available for oversight review. PS-13 shall maintain records of training provided by PS-13 only. Site records shall be submitted to the RRES-R Program RPF in accordance with applicable RRES-R Program policies and/or procedures.

13.2 Employee Exposure and Medical Records

Employee exposure-monitoring and medical records shall be retained by the employer in accordance with OSHA and DOE requirements (29 CFR 1926.33 and 10 CFR 835.401—404 and 1101(d)). Records shall be submitted to the RRES-R Program RPF in accordance with applicable RRES-R Program policy and/or procedure.

Exposure records for each employee monitored shall be maintained by the employer for 30 yr. Specifically, records of radiological surveys, material and equipment release, exposure, dosimetry, dose assessments, and instrument maintenance and calibration shall be documented and maintained by appropriate project team personnel. These records will be subject to monthly or quarterly review by Laboratory or its agents.

Medical records shall not include examination or test results, but shall include the employee's name and social security number; the physician's written opinion (Section 11.4, Information from the Evaluating Physician) and recommended limitations; any medical complaints related to exposure to hazardous substances; and a copy of the information provided to the examining physician by the employer (not including a copy of the OSHA standard). Subcontractors' medical records and programs are subject to HSR-2 review.

Records shall be retained in accordance with, though not limited to, the following requirements.

- To the extent permitted by law, the employer shall maintain and keep in confidence records for each employee.

- Medical records for each employee shall be maintained by the employer for the duration of employment plus 30 yr (except health insurance claims records maintained separately from the employer's medical surveillance program records, first aid records of one-time treatments, and medical records of employees who have worked for the employer for less than 1 yr and who have seen the records before termination).

- Records shall be maintained to document radiation doses received by all individuals for whom monitoring is required according to 10 CFR 835.402 and doses received during planned special exposures, accidents, and emergency conditions.

- At an employee's written request, the employer shall ensure that representatives designated by the employee have access to the employee's records. A sample consent form is provided in 29 CFR 1926.33 Appendix A.

- When an employee or designated representative requests access to an employee record, the employer shall ensure that access is provided in a reasonable time and manner. If the employer cannot provide access to the records within 15 working days, before the fifteenth working day following the request, the employer shall apprise the requester of the reason for the delay and the earliest date the records will be available;

- When an employee or designated representative requests a copy of a record, the employer shall ensure that either

  - a copy of the record is provided without cost to such requester;

  - the necessary copying equipment is made available without cost to such requester for the purpose of copying the record; or

  - the record is lent to such requester for a reasonable time so the requester may copy the record.

- Once a record has been provided without cost to the requester, the employer may charge a reasonable, nondiscriminatory administrative cost for subsequent copies of the record. However, an employer shall not charge for an initial request for a copy of new information that is added to a previously provided record.

Employee consent is required before investigators may access an employee's records for any follow-up investigation, in accordance with 29 CFR 1910.1020.

13.3 Employee Notification of Personal Exposure-Monitoring Results

The employer, in accordance with 29 CFR 1926.33, shall provide personal exposure-monitoring (dosimetry) results to each employee (including another employers' employee) for whom exposure monitoring was performed. The notification form shall be reviewed and acknowledged by each employee for whom monitoring has been conducted and notification provided. A copy of the notification form shall be provided to the subject employee and to the employee's supervisor.

These records are confidential in accordance with requirements of Section 13.2, Employee Exposure and Medical Records. The original form shall be retained with other original site records. Exposure-monitoring results should be communicated to others during the tailgate HS meeting following receipt and evaluation of the results, but in a manner that does not identify the employee that was monitored or other affected on-site personnel.

13.4 Emergency/Incident Records

Records of emergency or incident reports and follow-up investigations shall be processed according to Section 9.4, Reporting Emergencies/Incidents.

14.0 REFERENCES

Laboratory workers (subcontractors and UC) must adhere to the most current versions of the documents cited in this manual.

ANSI (American National Standards Institute), 1978. "Minimum Requirements for Workplace First Aid Kits," Z308.1-1998, New York, New York. (ANSI Z308.1-1998)

ANSI (American National Standards Institute), May 1992. "Practices for Respiratory Protection," ANSI Z88.2-1992, New York, New York. (ANSI Z88.2-1992)

ANSI (American National Standards Institute), January 1998. "Emergency Eyewash and Shower Equipment," ANSI Z358.1-1998, New York, New York. (ANSI Z358.1-1998)

American National Standards Institute/Compressed Gas Association, Inc., January 1997. "Commodity Specification for Air," ANSI/CGA G-7.1-1997, Arlington, Virginia. (ANSI/CGA G-7.1-1997)

DOE (US Department of Energy), April 1994. *Radiation Control Manual*, DOE/EH-0256T, Revision 1, Washington, DC. (DOE 1994, 59928)

DOE (US Department of Energy), June 1996. *Handbook for Occupational Safety and Health During Hazardous Waste Activities*, Office of Environmental Management, Washington, DC. (DOE 1996, 59930)

LANL (Los Alamos National Laboratory), January 2000. "Environmental Restoration Project Health and Safety Plan," Revision 2, Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL 2000, 65050)

RRES-R Quality Procedures

QP 4.4, Record Transmittal to the Records Processing Facility

QP 4.10, Document Development and Approval Process: Peer Review Not Required

QP 10.3, Stop Work and Restart

Radiation Protection Group Procedure

ESH-1-01-03.2, Radiological Surveillance Authorization Agreement, July 1, 1999.

Laboratory Implementation Requirements

LIR 300-00-01, Safe Work Practices

LIR 307-01-03, Management Safety Walk Around

LIR 401-10-01, Stop Work and Restart

LIR 402-10-01, Hazard Analysis and Control for Facility Work

LIR 402-130-01, Abnormal Events

LIR 402-700-01, Occupational Radiation Protection Requirements

LIR 402-810-01, Confined Spaces

LIR 402-840-01, Welding, Cutting, and Other Spark- or Flame-Producing Operations

LIR 402-860-01, Lockout/Tagout for Personal Safety

LIR 402-880-01, Excavation/Soil Disturbance Permit Process

Code of Federal Regulations

10 CFR 835, "Occupational Radiation Protection," US Department of Energy, Washington, DC.

29 CFR 1910, "Occupational Safety and Health Standards," US Department of Labor, Washington, DC.

29 CFR 1926, "Safety and Health Regulations for Construction," US Department of Labor, Washington, DC.

40 CFR 260,"Hazardous Waste Management System: General," US Environmental Protection Agency, Washington, DC.

40 CFR 261, "Identification and Listing of Hazardous Waste," US Environmental Protection Agency, Washington, DC.

40 CFR 262, "Standards Applicable to Generators of Hazardous Waste," US Environmental Protection Agency, Washington, DC.

40 CFR 263, "Standards Applicable to Transporters of Hazardous Waste," US Environmental Protection Agency, Washington, DC.

40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," US Environmental Protection Agency, Washington, DC.

40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," US Environmental Protection Agency, Washington, DC.

40 Part 266, "Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities," US Environmental Protection Agency, Washington, DC.

40 CFR 268, "Land Disposal Restrictions," US Environmental Protection Agency, Washington, DC.

40 CFR 270, "EPA-Administered Permit Programs: The Hazardous Waste Permit Program," US Environmental Protection Agency, Washington, DC.

49 CFR 106, "Rulemaking Procedures," US Department of Transportation, Washington, DC.

49 CFR 107, "Hazardous Materials Program Procedures," US Department of Transportation, Washington, DC.

49 CFR 130, "Oil Spill Prevention and Response Plans," US Department of Transportation, Washington, DC.

49 CFR 171, “General Information, Regulations, and Definitions,” US Department of Transportation, Washington, DC.

49 CFR 172, “Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements,” US Department of Transportation, Washington, DC.

49 CFR 173, “Shippers–General Requirements for Shipments and Packagings,” US Department of Transportation, Washington, DC.

49 CFR, “Carriage by Rail,” US Department of Transportation, Washington, DC.

49 CFR 175, “Carriage by Aircraft,” US Department of Transportation, Washington, DC.

49 CFR 176, “Carriage by Vessel,” US Department of Transportation, Washington, DC.

49 CFR 177, “Carriage by Public Highway,” US Department of Transportation, Washington, DC.

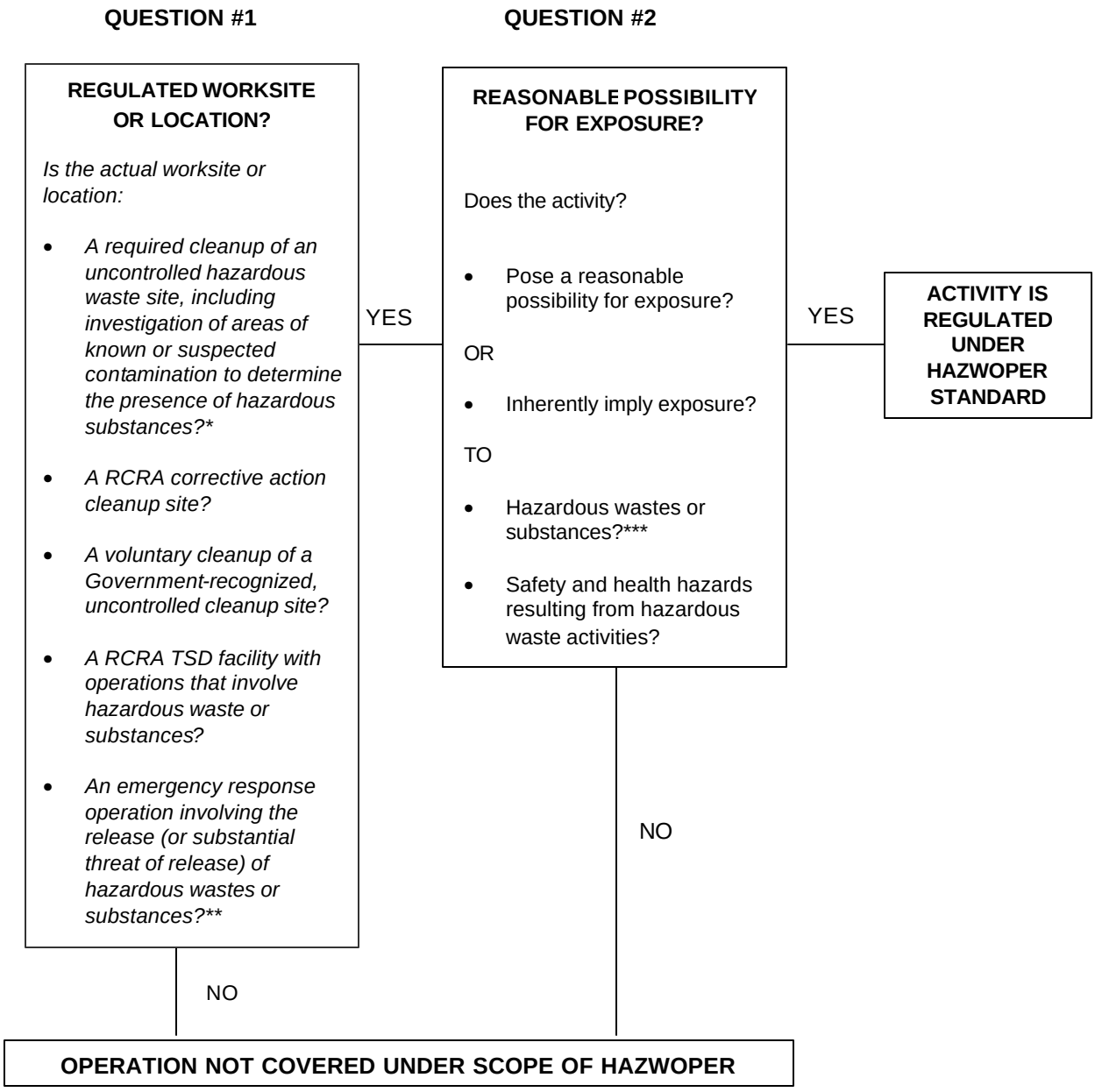
49 CFR 178, “Specifications for Packagings,” US Department of Transportation, Washington, DC.

49 CFR 179, “Specifications for Tank Cars,” US Department of Transportation, Washington, DC.

49 CFR 180, “Continuing Qualification and Maintenance of Packagings,” US Department of Transportation, Washington, DC.

Appendix A

HAZWOPER Applicability Decision Chart



* *Uncontrolled hazardous waste site* as defined in 29 CFR 1910.120; at the Laboratory, synonymous with *potential release site* (PRS).

** *Emergency response* as defined by OSHA in 29 CFR 1910.120.

*** *Hazardous substance (HS)* as defined by OSHA in 29 CFR 1910.120 and which is found at a site being investigated or cleaned up, or which is being treated, stored, or disposed of at a TSDF (OSHA Standards Interpretation and Compliance Letters: Oct. 27, 1992; Nov. 7, 1996; June 27, 1997).

Appendix B

Site-Specific Health and Safety Plan Outlines

MODEL SSHASP OUTLINE (LONG FORM)

TITLE PAGE (with approval/concurrence signatures)

1.0 PROJECT INFORMATION

- 1.1 Project Scope
- 1.2 Key Personnel Having Project H&S Responsibility
  - 1.2.1 H&S Line Management Responsibility and Lines of Communication
  - 1.2.2 H&S Communications
  - 1.2.3 Stop-Activity and Stop-Work Orders
  - 1.2.4 Relevant Site Information
  - 1.2.5 Site Description/History
  - 1.2.6 Previous/Existing Site Contamination Data
- 1.3 Hazard Assessment (general hazards that apply to all tasks such as slip/trip/falls and heat stress)
- 1.4 Administrative and Engineering Controls (for the general hazards that apply to all tasks)
- 1.5 Site Control
- 1.6 Hazard Communication
- 1.7 Exposure Monitoring (general hazards such as noise monitoring)
- 1.8 Personal Protective Equipment (PPE) (general PPE applicable to all tasks such as safety glasses and safety-toed shoes)
- 1.9 Project Spill Containment Plan (general spill containment provisions that apply to all asks)
- 1.10 Project Emergency Action/Response Plan
  - 1.10.1 Site Access
  - 1.10.2 First aid/ CPR
  - 1.10.3 Emergency Response Equipment
  - 1.10.4 Muster Area Location
  - 1.10.5 Emergency Signal and Evacuation Plan
  - 1.10.6 Emergency Route Map (from site to hospital and LANL occupational medicine facility)
  - 1.10.7 Incident Notification Process, (including contacts and phone numbers)

1.11 Medical Surveillance

1.12 Inspection and Recordkeeping Requirements

1.13 Pre-Job-Start H&S Briefing (including RRES-R HSRM/SSHASP acknowledgement form)

2.0 TASK HAZARD ANALYSIS (THA)

2.1 Task Description

2.1.1 Key Personnel (having task-specific: H&S responsibility, e.g., competent person for hoisting and rigging)

2.1.2 Hazard Assessment (task-specific: hazards not included in Section 1.4)

2.1.3 Administrative and Engineering (A&E) Controls (task-specific: A&E controls not included in Section 1.5)

2.1.4 Exposure Monitoring (task-specific: exposure monitoring not included in Section 1.8)

2.1.5 Personal Protective Equipment (PPE) (task-specific: PPE not included in Section 1.9)

2.1.6 Spill Containment Plans (task-specific: spill containment plan/requirements not included in Section 1.10)

2.1.7 Decontamination

2.1.8 Medical Surveillance (task-specific: requirements not included in Section 1.12)

2.1.9 Inspection and Recordkeeping Requirements (task-specific: requirements not included in Section 1.13)

2.1.10 Training Requirements

2.1.11 Task Health & Safety Briefing Form

MODEL SSHASP OUTLINE (SHORT FORM)

This form shall be used for documenting task-specific hazards and the controls to mitigate hazards associated with non-HAZWOPER, nonfacility work. In addition, task-specific hazards must not be chemical, radiological, or explosive in nature and shall have an initial risk of minimal to low (per the most current version of LIR 300-00-01) (e.g., nonintrusive geophysical surveying).

TITLE PAGE (with approval/concurrence signatures)

1.0 Scope of Work

2.0 Key Personnel Having Project Health and Safety Responsibilities

3.0 Site Description (including location)

4.0 Task Hazard Analysis (state specific hazards and controls such as elimination, administrative controls, engineering controls, personal protective equipment, and training requirements)

5.0 Emergency Action/Response Plan

- 5.1 Site Access
- 5.2 First Aid/CPR
- 5.3 Emergency Response Equipment
- 5.4 Muster Area Location
- 5.5 Emergency Signal and Evacuation Plan
- 5.6 Emergency Route Map (site to hospital and LANL occupational medicine facility)
- 5.7 Incident Notification Process, Contacts, and Phone Numbers

6.0 Pre-Job-Start Health and Safety Briefing (including RRES-R HSRM/SSHASP acknowledgement form)

Appendix C

Health and Safety Program Documents

Assured Equipment Grounding Conductor Program

Employers shall use ground fault circuit interrupters as specified in 29 CFR 1926.404(b)(1)(ii) or shall establish and implement a written assured equipment-grounding conductor program covering cord sets, receptacles that are not part of a building or structure, and equipment connected by cord and plug, which are available for use by employees. This program must comply with 29 CFR 1926.404 and must be kept available at the job site for review and copying by affected employees. The program must include

- a description of specific procedures adopted by the employer for compliance;
- designation of one or more competent persons to implement the program;
- requirement of visual inspection of equipment covered by this program before each day's use and disallowance of damaged or defective equipment until it is repaired;
- testing of equipment covered by this program according to 29 CFR 1926.404(b)(1)(iii)(D);
- commitment that only equipment that meets the requirements of 1926.404 shall be made available or used; and
- recordkeeping of the required tests performed under the program.

Blood-Borne Pathogens Exposure-Control Program

Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.1030 was enacted to protect workers who, during the course of performing their work-related duties, could be exposed to hepatitis B virus, human immunodeficiency virus (HIV), and other blood-borne pathogens. Anyone rendering first aid or CPR may be at risk of exposure to illnesses transmitted by contact with another person's blood or body fluids. The US Department of Energy (DOE) and OSHA require employers covered by this regulation to establish a written exposure-control program in compliance with this standard, which includes

- determining potential for exposure by identifying job titles and tasks that involve or may involve occupational exposure to blood or other potentially infectious materials;
- offering hepatitis B vaccination to employees at risk of exposure;
- defining schedules and methods of employee training and implementing required universal precautions, using applicable personal protective equipment (PPE) to prevent contact with infectious material, providing postexposure evaluation and follow-up (including offering hepatitis B vaccination at no cost to employees), communicating hazards to employees, and maintaining required records;
- developing and implementing a procedure for evaluating circumstances of exposure incidents per 29 CFR 1910.1030 (f)(3)(i);
- ensuring that affected employees have access to the employer's program; and
- reviewing and updating the program at least annually or as necessary to reflect new or modified job titles, tasks, or procedures affected by the program.

Chemical Hazard Communication Program

In accordance with 29 CFR 1926.59(e), employers of employees who are occupationally exposed to hazardous chemicals are required to develop, implement, and maintain at the job site a written hazard communication program, which includes

- a list of the hazardous chemicals (excluding hazardous wastes) known to be present;
- a material safety data sheet (MSDS) for each hazardous chemical used by employees;
- means for ensuring that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the identity of the chemicals contained therein and appropriate hazard warnings;
- employee training about
    - the location and availability of the hazard communication program,
    - the required list of chemicals and the MSDSs,
    - methods for detecting the presence or release of hazardous chemicals in the work area
    - physical and health hazards of the chemicals,
    - measures employees should take to protect themselves,
    - details of the employer's hazard communication program, and
    - the requirements of 29 CFR 1926.59;
- how the employer will inform employees of chemical hazards associated with nonroutine tasks;
- how the employer will make available to other employers at multi-employer work sites a copy of the employer's MSDSs for the chemicals the employer uses at the site;
- how the employer will inform other employers at multi-employer work sites of the employer's precautionary measures to protect employees during normal operating conditions and foreseeable emergencies; and
- how the employer will inform other employers at multi-employer work sites of the employer's labeling system used at the work site.

Chemical-Specific Compliance Programs

As of February 2003, OSHA regulates occupational exposure to the toxic chemical substances listed below (29 CFR 1926 Subpart Z or 29 CFR Subpart Z 1910).

Table C-1
OSHA Regulated Chemical-Specific Standards

Chemical	Standard
13 Carcinogens: 4-Nitrobiphenyl α-Naphthylamine Methyl chloromethyl ether 3,3'-Dichlorobenzidine (and its salts) bis-Chloromethyl ether β -Naphthylamine Benzidine 4-Aminodiphenyl Ethyleneimine β-Propiolactone 2-Acetylaminofluorene 4-Dimethylaminoazo-benezene N-nitrosodimethylamine	29 CFR 1910.1003
Acrylonitrile	29 CFR 1910.1045
Arsenic (inorganic)	29 CFR 1910.1018
Asbestos	29 CFR 1926.1101
Benzene	29 CFR 1910.1028
1,3-Butadiene	29 CFR 1910.1051
Cadmium	29 CFR 1926.1127
Coke oven emissions	29 CFR 1910.1029
1,2-Dibromo-3-chloropropane	29 CFR 1910.1044
Ethylene oxide	29 CFR 1910.1047
Formaldehyde	29 CFR 1910.1048
Lead	29 CFR 1926.62
Methylene chloride	29 CFR 1910.1052
Methylenedianiline	29 CFR 1926.60
Vinyl chloride	29 CFR 1910.1017

Most of these standards require that employers of employees who may be occupationally exposed to these chemicals above permissible exposure limits (PELs) must establish and implement a written compliance program before commencing a task that involves exposure to these chemicals. These programs must be revised and updated at the frequencies indicated in the respective standards. For projects that involve exposure to asbestos-containing material (ACM), the OSHA asbestos standard requires an exposure assessment, which may trigger other requirements (29 CFR 1926).

Each compliance program must include information required by the respective chemical-specific standards, which may include all or part of the following chemical-specific information:

- a description of each activity in which the chemical is emitted, which includes the equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices;
- a description of the specific means that will be employed to achieve compliance with an applicable OSHA standard;
- a report of the technology considered in meeting the PEL;
- air monitoring data that documents the source of emissions of the hazardous chemical;
- a detailed schedule for implementing the program, including documentation (e.g., copies of purchase orders for equipment, construction, contracts, etc.);
- a work practice program that includes PPE training and use, housekeeping, and medical surveillance;
- a description of required work practices;
- an administrative control schedule; and
- a description of arrangements made between employers on multi-employer sites with respect to informing affected individuals of potential exposure and means for preventing and protecting such individuals from overexposure.

Confined-Space Entry Program (Permit-Required)

Employers of employees who will enter a confined space shall maintain and implement a written confined-space entry program, which complies with 29 CFR 1910.146. A task-specific permit shall be prepared and approval signatures obtained (Section 1.2.3 of this document) before a confined space is entered. This program must include

- the measures needed to prevent unauthorized entry;
- a system for the preparation, issuance, use, and cancellation of confined-space entry permits;
- defined responsibilities of persons who will have active roles (e.g., authorized entrants, attendants, entry supervisors, and atmosphere-monitoring personnel) in entry operations and provision of such personnel;
- defined responsibilities of an attendant who will remain outside the confined space into which entry is authorized for the duration of entry operations and provision of such personnel;
- provision for training required by 29 CFR 1910.146(g) for persons having active roles in entry operations;
- means for identifying and evaluating hazards of confined spaces before employees enter such spaces;
- means, procedures, and practices necessary for safe confined-space entry operations;

- procedures for coordinating entry operations when employees of more than one employer perform entry operations simultaneously, so that employees of one employer do not endanger employees of another;
- provision and maintenance of equipment specified in paragraphs (d)(4)(i) through (d)(4)(ix) of 29 CFR 1910.146 at no cost to employees;
- means for ensuring that employees use the equipment properly;
- means and methods for evaluating (testing and monitoring) environmental conditions of confined spaces;
- procedures for summoning rescue and emergency services for rescuing and providing emergency services to entrants of confined spaces, and for preventing unauthorized personnel from attempting rescue;
- procedures for canceling the permit and for concluding entry operations; and
- provisions for review and revision of the program, including review of canceled permits within 1 yr after each entry and revision, as necessary to ensure that employees who participate in entry operations are protected from confined-space entry hazards.

Hazardous Waste Operations (HAZWOPER) Program

Employers of employees who perform RRES-R Program work must maintain and implement a written hazardous waste operations (HAZWOPER) program, which complies with the requirements of 29 CFR 1926.65(b). This program does not need to repeat portions of the employer's program that are documented elsewhere, but the information should be sufficiently cross-referenced. This program must include

- an organizational structure establishing chain of command and overall responsibilities of supervisors and employees;
- a comprehensive work plan addressing the tasks and objectives of the site operations and the necessary logistics and resources to accomplish the tasks and objectives;
- a site-specific health and safety (HS) plan;
- the employer's medical surveillance program;
- the employer's PPE program;
- the employer's respiratory protection program;
- the employer's HAZWOPER training program;
- the employer's HS standard operating procedures;
- any necessary interface between general and site-specific HAZWOPER programs, plans, and activities; and
- means and methods for (1) notifying others employers at multi-employer work sites of HS hazards associated with their activities and the corresponding emergency response procedures, and (2) making available the employer's HAZWOPER program to other such employers.

Hearing Conservation Program

DOE and OSHA, under 29 CFR 1910.95(c), require an employer to implement a hearing conservation program when employees are potentially or actually exposed to occupational noise levels at or exceeding the 8-hr time-weighted action level of 85 decibels measured on the A-weighted scale (85 dBA). The employer's program must address

- sound-level monitoring;
- employee notification of sound-level monitoring results;
- observation of monitoring;
- audiometric testing;
- hearing protectors;
- employee training to include the
    - ♦ effects of noise on hearing;
    - ♦ purpose of hearing protectors; the advantages, disadvantages, and attenuation of various types; instruction on selecting, fitting, use, and care; and
    - ♦ purpose of audiometric testing and an explanation of the test procedures;
- access to information and training materials; and
- recordkeeping.

Laboratory Chemical Hygiene Plan

Where hazardous chemicals are used in a laboratory (including mobile laboratories) the employer shall develop and carry out the provisions of a Laboratory chemical hygiene plan in compliance with 29 CFR 1910.1450. This plan shall include each of the following elements and shall indicate specific measures that the employer will take to ensure laboratory employee protection:

- standard operating procedures relevant to HS considerations that shall be followed when laboratory work involves the use of hazardous chemicals;
- criteria the employer will use to determine and implement control measures to reduce employee exposure to hazardous chemicals, including hygiene practices, engineering controls, and use of PPE;
- a requirement that fume hoods and other protective equipment are functioning properly and specific measures that shall be taken to ensure proper and adequate functioning of such equipment;
- provisions for employee information and training in accordance with 29 CFR 1910.1450(f);
- defined circumstances under which a particular laboratory operation, procedure, or activity shall require approval from the employer or the employer’s designee prior to implementation;
- provisions for medical consultation and examinations in accordance with 29 CFR 1910.1450(g);

- designation of personnel responsible for implementation of the plan, including assignment of a chemical hygiene officer;
- provisions for additional employee protection for work with particularly hazardous substances (e.g., select carcinogens, reproductive toxins and acutely toxic substances), especially addressing the establishment of a designated area of use/handling, use of containment devices (e.g., hoods or glove boxes), procedures for safe removal of contaminated waste, and decontamination procedures; and
- provision for review, evaluation of effectiveness, and update of the plan by the employer at least annually.

Lockout/Tagout for Control of Hazardous Energy Sources for Personnel Safety Program

Employers of employees who perform RRES-R Program work and service or maintain machines or equipment from which the unexpected energization or start up of the machine or equipment, or release of stored energy could cause injury to employees, must establish a written lockout/tagout program. This program shall include procedures that comply with the requirements of 29 CFR 1910.147. This includes any activity involving the shutdown or temporary lockout of hazardous energy sources (including electric, mechanical, pneumatic, thermal, hydraulic, chemical, and radioactive) for which a written procedure is required. This program shall provide for

- training to ensure that employees understand the purpose and function of the energy control program;
- at least annual inspection of the energy control procedure to ensure that it is being properly implemented; and
- provision of appropriate hardware and protective materials (e.g., locks, tags, and chains) by the employer for isolating, securing, or blocking machines or equipment from energy sources.

The procedures shall cover elements and actions (in the stated sequence), including

1. preparation for shutdown, ensuring that workers are knowledgeable about the type and magnitude of energy, the hazards of the energy to be controlled, and the method or means to control the energy;
2. machine or equipment shutdown;
3. machine or equipment isolation from energy sources;
4. application of a lockout/tagout device;
5. relief, restraint, or disconnection from stored energy and the control of accumulated stored energy; and
6. machine verification of isolation from the energy sources.

Medical Surveillance Program

Employers of employees who perform RRES-R Program work must maintain and implement a written medical surveillance program that complies with applicable OSHA requirements (Section 11.0 of this document).

Personal Protective Equipment

Employers of employees who perform RRES-R Program work while using PPE must maintain and implement a written PPE program that complies with applicable OSHA requirements (Section 7.0 of this document).

Radiation Safety Program

The subcontractor's Radiation Safety Program and procedures must be approved by the UC (Section 1.2 of this document) or implement the entire Laboratory Radiation Protection Program.

Respiratory Protection Program

Employers of employees who perform RRES-R Program work while using respiratory protective equipment must maintain and implement a written respiratory protection program that complies with applicable OSHA requirements (Section 7.1 of this document).

Welding, Cutting and Other Spark- or Flame-Producing Operations (Hot Work/Burn Permit)

Employers of employees who perform RRES-R Program work must maintain and implement a written welding and cutting (hot work) program that complies with applicable OSHA requirements (Section 1.2.3 of this document).

Training Program

Employers of employees who perform RRES-R Program work must maintain and implement a written employee training program that complies with applicable OSHA requirements (Section 10.0 of this document).

Appendix D

Pre-Job H&S Briefing and RRES-R HSRM/SSHASP Acknowledgement Form

PRE-JOB-START HEALTH & SAFETY BRIEFING & RRES-R HSRM/SSHASP

ACKNOWLEDGEMENT FORM

Project Title: _____

TA(s): _____ SSHASP No.: _____

Conducted by:

Printed Name Title Employer or LANL Group Z Number

Signature Date

I acknowledge that I understand the RRES-R HSRM requirements applicable to this project, and have read or been briefed on the contents of this SSHASP in accordance with requirements of Sections 1.2.2 and 10.1.1 of the RRES-R HSRM.

NAME	EMPLOYER GROUP	Z NUMBER	SIGNATURE	DATE

Appendix E

SSHASP Modification Form

Los Alamos National Laboratory
RISK REDUCTION AND ENVIRONMENTAL STEWARDSHIP-R (RRES-R)
SITE SPECIFIC HEALTH & SAFETY PLAN (SSHASP)

Project Title: _____

TA(s): _____ SSHASP No.:_____ Modification No.: _____

This SSHASP Modification modifies and/or supplements the associated SSHASP. Copies of this modification shall be readily accessible for review onsite by individuals who may be exposed to hazards resulting from work conducted under the scope of this document. Personnel performing work under the scope of this modification are required to sign the Health & Safety Briefing Acknowledgement page attached. Your signature acknowledges your awareness of the information documented herein and that you will abide by the requirements of all applicable H&S plans to eliminate or lessen the risk of injury or illness from exposure to the identified hazards.

APPROVALS/CONCURRENCE

The following individuals are providing their signature approval/concurrence for the parts of this SSHASP modification that are pertinent to the work their companies/groups are responsible for.

Signature	Name	LANL Group	Date
UTR/PTL			
Signature	Name	LANL Group	Date
RRES-R/HS Representative			
Signature	Name	LANL Group	Date
FMU Representative			
Signature	Name	LANL Group	Date
RRES-R/HSR-1 Representative			
Signature	Name	Company	Date
Subcontractor H&S Responsible Line Manager			
Signature	Name	Company	Date
Subcontractor H&S Responsible Line Manager			

Comments of the above reviewers have been incorporated as stipulated or resolved with written record and copy to the respective reviewer.

Plan Preparer	Signature	Company	Mailstop	Date

Appendix F

SSO Qualifications Review Criteria and Form

SITE SAFETY OFFICER

The site safety officer (SSO) is a critical project team member and must have the safety and health knowledge necessary to perform her/his functions. The SSO's employer is responsible for ensuring that the SSO is fully qualified to carry out these functions. Specifically, if the SSO is a Los Alamos National Laboratory (Laboratory) employee (or Laboratory contract employee), approval shall be secured from the Risk Reduction Environmental Stewardship (RRES) Division-Remediation (RRES-R)/HS Support Team. RRES-R subcontractors are responsible for approving the qualifications of SSOs provided by their own organization or by their subtier contractor organizations.

Health, Safety, and Radiation (HSR) Protection Division's Industrial Hygiene and Safety Group (HSR-5) maintains a central list of SSOs. The names and qualifications of subcontractor-approved SSOs must be submitted to HSR-5 for recordkeeping purposes but not for approval or acceptance. (The ability to provide a qualified SSO for a project will be an evaluation criterion in subcontractor performance evaluations.) Qualifications for an SSO not already on the central list shall be documented on the SSO qualification review form and submitted to HSR-5 at least 2 weeks before the start of a field project. Qualification updates may be submitted, as necessary, to reflect pertinent changes in an individual's qualifications.

SSOs shall be categorized into one of three qualification levels: HAZWOPER Level 1 SSO, HAZWOPER Level 2 SSO, and HAZWOPER Level 3 SSO.

The following guidelines are provided to assist the reviewer in determining the proper SSO qualification category.

HAZWOPER LEVEL 1 SSO

HAZWOPER Level 1 SSO is the lowest SSO level. It is appropriate for sites where minimal hazards (chemical, physical, biological, and radiological) are expected and where personnel likely will wear Level D or modified Level D personal protective equipment (PPE).

The Level 1 SSO should meet the following criteria:

- completed high school education;
- able to recognize hazards and implement and ensure project activities are performed in accordance with this health and safety requirements manual (HSRM), the site-specific health and safety plan, and applicable health and safety regulations.

HAZWOPER LEVEL 2 SSO

A HAZWOPER Level 2 SSO must possess the ability to effectively support a project with a higher level of hazard complexity. Generally, hazards on the site may require

- using air-purifying respirators (Level C PPE),
- understanding exposure-monitoring strategy development,
- implementing engineering controls, and
- understanding physical exposure hazards such as heavy equipment, drill rigs, and excavations and the controls required to mitigate the hazards.

The Level 2 SSO should be Level-1 qualified and meet the following criteria:

- an associates degree or higher in industrial hygiene, health physics, industrial safety, or other related science or engineering degree;
- proficiency in the use of monitoring instruments required for project activity; and,
- health and safety experience (1-yr minimum suggested) in hazardous waste operations or similar operations, including implementation of safety and health plans/programs.

HAZWOPER LEVEL 3 SSO

A HAZWOPER Level 3 SSO must possess the ability to effectively support a project with the highest level of hazard complexity. Generally, hazards on the site may

- have the potential for significant injury or illness resulting in irreversible harm and
- require the use of Level A or B PPE.

The Level 3 SSO should be Level 2 qualified and meet the following criteria:

- certification, or have the ability to become certified, in industrial hygiene, health physics, safety and/or related fields.

  Note: Work experience may be satisfactory if type and amount of experience is appropriate for project requirements.

- proficiency in the use of monitoring instruments required for project activity; and
- health and safety experience (2-yr minimum suggested) in hazardous waste operations or similar operations, including implementation of safety and health plans/programs. Experience with projects requiring Level A or B PPE is highly desirable.

SITE SAFETY OFFICER (SSO) QUALIFICATION REVIEW FORM

Sec. I Name of Person Needing Qualification:_____

Employer: _____

Supervisor:_____

Phone #:_____ Fax #: _____

Sec. II Educational Experience/Equivalent

Institution	From	To	Degree	Major

Work/Applicable Experience

Employer	Job Title	From	To	Credited Experience

Sec. III SSO Qualification Experience (Check all that apply)

SUBJECT	SPECIFIC ACTIVITY	Yes	No	Date
HAZWOPER Training:	40 hour			
	8 hour refresher			
	8 hour supervisor			
	RAD Worker (I or II)			
	First Aid/CPR			
SSO Experience:	HAZWOPER Activity	Yes	No	How Often
Intrusive	Drilling			
	Excavation			
	Heavy Equipment			
	Other:			
Non-intrusive	Geophysical			
	Water Samples			
	Surface Scrapes			
	Other:			
Performing Hazards Analysis:	Chemical Agents Examples:			
	Biological Agents Examples:			
	Physical Agents Examples:			
	Writing Health and Safety Plans			
	Leading Safety Meetings			

		Yes	No	How Often
Air Sampling Experience:	Particulates			
	VOCs			
	Semi-VOCs			
	Metals			
	Other:			
PPE Selection and Use Experience:	Level A			
	Level B			
	Level C			
	Level D			

Air Monitoring Equipment Experience: (Check all that apply)	Calibration	Field Use	Trouble-shooting	Maintenance and Repair
PID				
OVA				
CGI				
Colorimetric Tubes				
Mini-RAM				
IH Pumps				
Respirable Samplers				
Miran				
Other:				
Other:				
Other:				

I have reviewed the qualifications for the above individual and verify to the best of my ability that this individual meets level_____ SSO qualifications.
(1, 2, or 3)

_____ _____

Employer Signature Date

_____

Printed Name/Title

_____

HSR-5 Review